

Rock Products

DEVOTED TO
Concrete and Manufactured
Building Materials

Volume XIII.

CHICAGO, ILL., AUGUST 22, 1913.

Number 2.

CAROLINA PORTLAND CEMENT COMPANY

We are the largest distributors of Portland Cement, Lime Plaster, Fire-brick and General Building Material in the Southern States, and have stocks of Standard Brands at all of the Atlantic and Gulf Seaports, and at our interior mills and warehouses, for prompt and economical distribution to all Southern territory. Write for our delivered prices anywhere. Also Southern agents for the "Dehydrated" waterproofing material. "Universal," "Acme" and "Electrol" Brands Ready Roofing. Get our prices.

Charleston, S. C. Birmingham, Ala. Atlanta, Ga. New Orleans, La.

DEXTER Portland Cement
THE NEW STANDARD

Sole Agents **SAMUEL M. FRENCH & CO.** Philadelphia



UNION MINING COMPANY

Manufacturers of the Celebrated

MOUNT SAVAGE
FIRE BRICK
GOVERNMENT STANDARD

DEVOTE a special department to the manufacture of Brick particularly adapted both physically and chemically to

**Lime Kiln and
Cement Kiln
Construction**

Large stock carried. Prompt shipments made. Write for quotations on Standard and Special shapes, to

UNION MINING CO.

Mount Savage, Md.

CAPACITY, 60,000 PER DAY
ESTABLISHED 1841



THE HOTEL UTAH
SALT LAKE CITY

Salt Lake City's new two million dollar hotel

"American Keene Cement" used.

Durability Strength Superiority
USE



"STRONGEST KEENE CEMENT KNOWN"

AMERICAN KEENE CEMENT CO., SIGURD, UTAH



CHICAGO BELTING COMPANY
PURE OAK TANNED LEATHER BELTING

RELIANCE and SEA LION WATERPROOF

The two brands of leather belting that represent the best in belt construction. Our catalog is yours for the asking.

CHICAGO BELTING CO., 113-125 N. Green Street, CHICAGO

Branches: New York, New Orleans, Portland, Ore., Los Angeles, Cal., Cleveland, Ohio.

Tannery, Niles, Mich.



SPECIAL FEATURES IN THIS NUMBER

Introducing a New Material	Page 24
The Fallacy of Present-Day Fire Insurance	Page 26
Illinois Dedicates Pioneer Concrete Road	Page 34
A Perfect, Sanitary Milkhouse	Page 37
Workingmen's Liability Rates	Page 38
Agricultural Lime	Page 43



Phoenix Portland Cement UNEXCELLED FOR ALL USES.

Manufactured by
PHOENIX PORTLAND CEMENT CO.
NAZARETH, PA.

Sole Selling Agent, **WILLIAM G. HARTRANFT CEMENT CO.**
Real Estate Trust Building, PHILADELPHIA, PENNSYLVANIA.



Ottawa Silica Co.'s Washed White Flint Sand

Is used for sawing stone in more than a dozen states. Cuts more and lasts longer than any other sand on the market. Unexcelled for Roofing, Facing Cement Blocks, White Plaster, etc. Freight rates and prices on application.

OTTAWA SILICA CO.

Ottawa, Ill.

Best Bros. Keene's Cement

"The Plaster That Stands Hard Knocks"

A cement noted for its quality and durability for over twenty-five years. Ideal for all high-grade interior finishing and decorative work. The one plaster that can be guaranteed for finish work on concrete.

Write for "The Inner Wall"

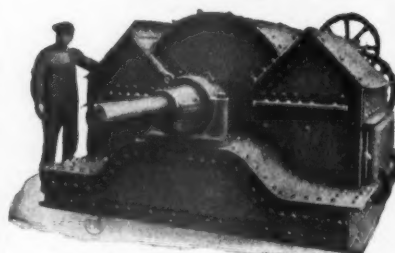


The Best Bros. Keene's Cement Co.

Estab. 1889
NEW YORK

Dept. A, Medicine Lodge, Kan.
(40) CHICAGO

"PENNSYLVANIA" HAMMER CRUSHERS



For Pulverizing Limestone, Lime, Cement Rock, Marl, Shale, Etc.

Main Frame of steel, "Ball and Socket" Self aligning Bearings; forged Steel Shaft; Steel Wear Liners; Cage adjustable by hand wheel while Crusher is running. No other hammer Crusher has such a big Safety Factor.

PENNSYLVANIA CRUSHER CO.

Philadelphia
New York Pittsburgh



MILLS

Montreal	Port Colborne
Hull	Shallow Lake
Belleville	Marlbank
Lakefield	Winnipeg
Calgary	Exshaw

For Prices Any Where in
CANADA
Write or Wire Our Nearest Sales Office

Canada
Cement Company
LIMITED

Montreal - Toronto
Winnipeg - Calgary



ONE GRADE—ONE BRAND

Alpha Portland Cement

Best in the World for
Sidewalks

Write for our Handsomely Illustrated Book. Sent Free.

General Offices: No. 7 Center Square, EASTON, PA.

—SALES OFFICES:—

The Oliver Bldg., PITTSBURGH.
Builders Exchange, BALTIMORE.
Harrison Building, PHILADELPHIA.
National Bank Bldg., SAVANNAH, GA.

Builders Exchange, BUFFALO.
Board of Trade Bldg., BOSTON.
Hudson Terminal Bldg., N. Y.
Marquette Bldg., CHICAGO.

Northwestern Portland Cement



The Reliable Portland
Cement

A Portland Cement
for the

NORTHWEST

NORTHWESTERN STATES PORTLAND CEMENT COMPANY
MASON CITY, IOWA



The Best Cement

Rightly Used

Means Permanency

Of course the cement itself must
be up to standard.

In strength Lehigh exceeds the
standard by 35%. Permanency is in
every sack, insuring lasting work,
satisfied customers and so repeat
orders for dealers.

Lehigh Portland Cement Co.



CAPACITY
12,000,000 BARRELS

Allentown, Pa. Chicago, Ill.



"WOLVERINE"

The Alright Cement

MADE RIGHT SOLD RIGHT
WORKS RIGHT
WEARS RIGHT

The Best is None Too Good For You.
Insist Upon

"WOLVERINE"

Write for Booklet and Quotations.
Factories at Coldwater and Quincy, Mich.
Capacity 3500 Daily.

WOLVERINE PORTLAND CEMENT COMPANY

W. E. COBEAN, Sales Agent,
Coldwater, Michigan

Main Office, Coldwater, Mich.

Tell 'em you saw it in ROCK PRODUCTS





Over 40 Years' Experience Built Into This Machine

The experience of over two-fifths of a century in designing and building drilling machines for all kinds of deep drilling has enabled us to incorporate the most practical knowledge of the requirements in the design of

The "New American" Blast Hole Cable Drilling Machine

First of all the machine is built low to give it greatest stability, and the derrick is placed at one side of the center to balance the band wheel on the other.

The derrick is one of the strongest ever constructed and is designed to be raised by the power of the machine.

The important feature of the design of this machine is that it carries drilling tools weighing up to 1200 pounds, and the machine is so simple in design that it is not of excessive weight and therefore readily portable.

It delivers 55 to 60 strokes per minute and will maintain a speed of 60 strokes per minute in a dry hole to a depth of 40 feet.

It will drill 50 to 100 feet of 5½ inch hole in a 10-hour day in average working conditions. Not a *record* day, mind you, but *average conditions*.

The drilling tools are always *hung up* off the bottom when spud beam is stopped and always start on the *down stroke*.

There are no gear wheels or clutches and the spuding motion is stopped instantly regardless of the speed of the engine.

Fitted with gasoline, steam, or electric power.

Bulletin 129 tells about this improved machine. Shall we mail you a copy?



The American Well Works

General Office and Works:
Aurora, Ill.

Chicago Office:
First National Bank Building

Tell 'em you saw it in ROCK PRODUCTS

It Can't Be Done. No, Sir.

NO OTHER PULVERIZING MILL
CAN COMPARE WITH

The Giant Griffin Mill

As a Cement Material Pulverizer

IT HAS STOOD EVERY TEST that exacting cement mill operators have subjected it to and has come through with flying colors.

ONE OF THE LARGEST COMPANIES now employ 50 Giant Mills; another 31; another 8; several 4. And many of these have taken the place of other types of mills.

NO MILL HAS SUCCEEDED THE GIANT—every mill we have sold is in operation—may we send descriptive catalog and prints?

Bradley Pulverizer Co. BOSTON
LONDON
BERLIN



WHAT YOU WANT IN A LOCOMOTIVE



You want, and should have, reliability, efficiency and durability in the locomotive you buy.

To secure reliability every part must have just the right amount of the right material in the right place. Materials must pass rigid inspection and tests. Generations of experience in building thousands of locomotives, is back of every locomotive we build.

For the service small locomotives are called upon to perform, efficiency means readiness to perform a day's work every day. You know how the work stops with the locomotive out of service. We guard against breakdowns by the material and the design.

Every part is made with reference to long life. Every part is made interchangeable for each size of locomotive, so that worn parts may be quickly replaced without a machine shop. This is most important in keeping the engine on the job. Get in touch with us.

AMERICAN LOCOMOTIVE COMPANY
30 CHURCH STREET, NEW YORK

McCormick Building, Chicago

Carl G. Borchert, Pioneer Building, St. Paul, Minn.

N. B. Livermore & Company, San Francisco and Los Angeles, California

Northwestern Equipment Company, Seattle, Washington, and Portland, Oregon

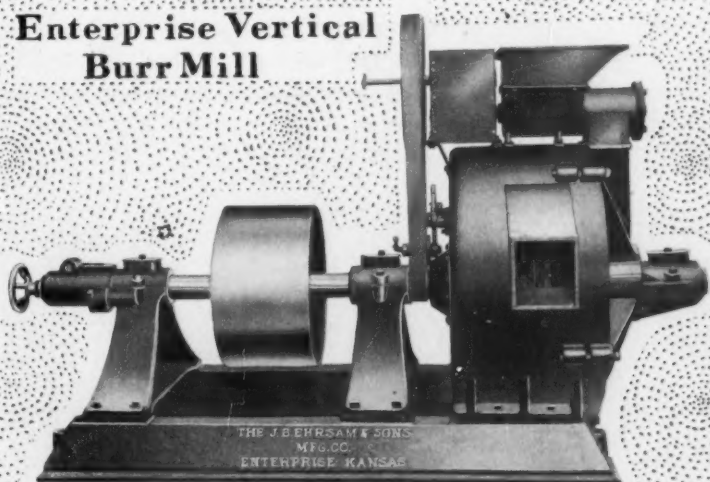
Dominion Express Building, Montreal, Canada

A. Baldwin & Co., New Orleans, La.

Tell 'em you saw it in ROCK PRODUCTS

Equip your grinding plant with EHRSAM grinding & separating machinery

Enterprise Vertical Burr Mill



THE MORSE-EHRSAM SYSTEM of GRINDING & SEPARATING will enable you to produce a finer product without corresponding increase in power.

SEND USA SAMPLE of your material stating fineness and capacity required and we will furnish full particulars.



Horizontal Burr Mill



Inertia Classifier

THE INERTIA CLASSIFIER is of inestimable value in plants where a fine material is required owing to its low cost per ton capacity and owing to the small amount of power required per ton capacity.

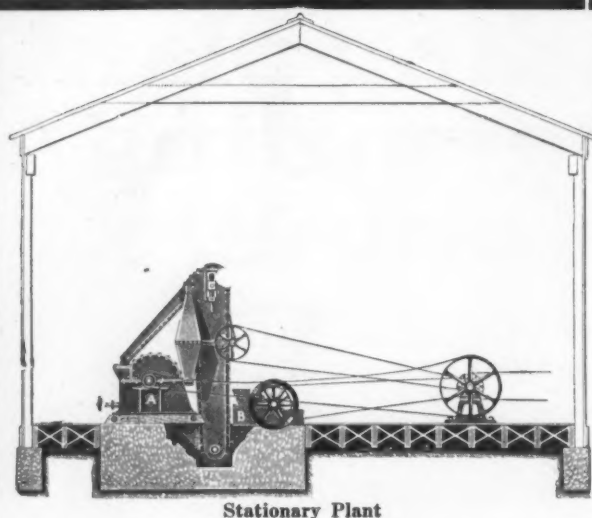
It can be operated in connection with Burr Mills Hammer Mills or any other type of grinding Mill.

J.B. EHRSAM & SONS

Manufacturers of
GYPSUM PLASTER
MILL MACHINERY.

MFG. CO.

ENTERPRISE,
KANSAS.



Stationary Plant

Reclaim Your Waste Product

**GRIND YOUR LIMESTONE SCREENINGS
AND MAKE LIMESTONE FERTILIZER**

What is Now a Dead Loss to Some Quarrymen
Can Be Turned Into Good Profits

WE FURNISH COMPLETE PLANTS OF ANY CAPACITY DESIRED

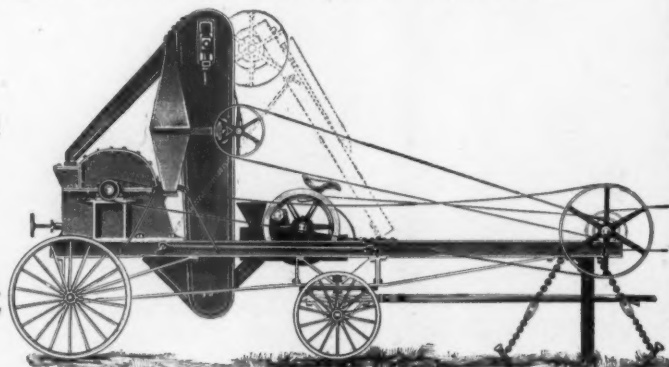
Manufactured and Licensed under 87 Separate and Distinct Patents

We now have over 50 plants in operation

BULLETIN NO. 4 EXPLAINS THE
PROPOSITION

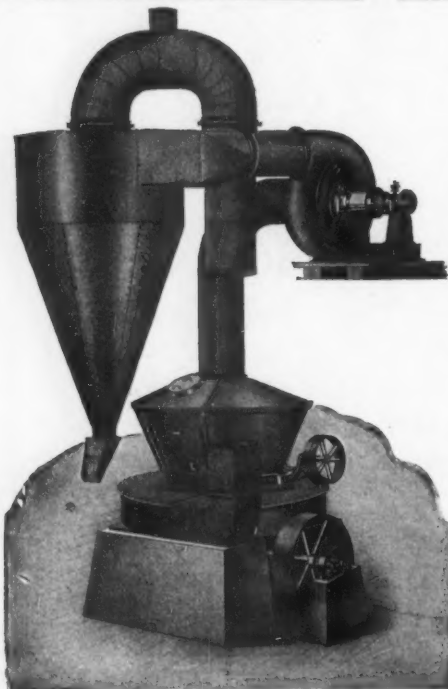
**The Williams Pat. Crusher &
Pulv. Co.**

ST. LOUIS 2705 N. Broadway
CHICAGO: Old Colony Bldg.
SAN FRANCISCO: 428 Monadnock Bldg.



Portable Plant

Raymondize Your Method of Gypsum Grinding



The changes that have come about in the past four years in the manufacture of Gypsum Plaster have been truly remarkable. The old time methods of the maker was to grind gypsum rock to 50 mesh—that was the best he knew, but not the best he could do.

By accident, one man's problem and its solution completely revolutionized the plaster making process. The solution was finer grinding of gypsum rock and a method of separating by air suction known as the

RAYMOND PULVERIZING AIR-SEPARATING SYSTEM

These new and modernized processes have worked out surprising economies and made it possible to produce a higher grade plaster with a higher market value and greater profits.

Any manufacturer of gypsum plaster who is now using Buhr Stones for grinding will be glad to learn of the changes he can effect by modernizing it to keep pace with those who are now enjoying the benefits from their installation of Raymond Roller Mills with Air Separators.

Write for our "Book on Pulverizing."—It embodies the most advanced ideas in Grinding Engineering—being the result of 25 years study; involving an expenditure of hundreds of thousands of dollars in experiments, inventions and improvements in pulverizing processes in all industries.

After analyzing conditions in your plant we will guarantee it to do a definite service or remove the installation at our expense.

We design special machinery and methods for Pulverizing, Grinding, Separating and Conveying all powdered products. We manufacture Automatic Pulverizers, Roller Mills, Vacuum Air Separators, Crushers, Special Exhaust Fans and Dust Collectors.

SEND FOR



THE BOOK

Raymond Bros. Impact Pulverizer Co.,
1301 N. Branch St., Chicago.

Please send us your Book on Modern
Methods of Pulverization.

Name
Street
City State.....

Tell 'em you saw it in ROCK PRODUCTS



AUSTIN GYRATORY CRUSHERS

Made in Eight Sizes

50 to 5000 Tons Per Day

Plans and Specifications submitted and expert advice free on any problems involving rock-crushing or earth-handling.

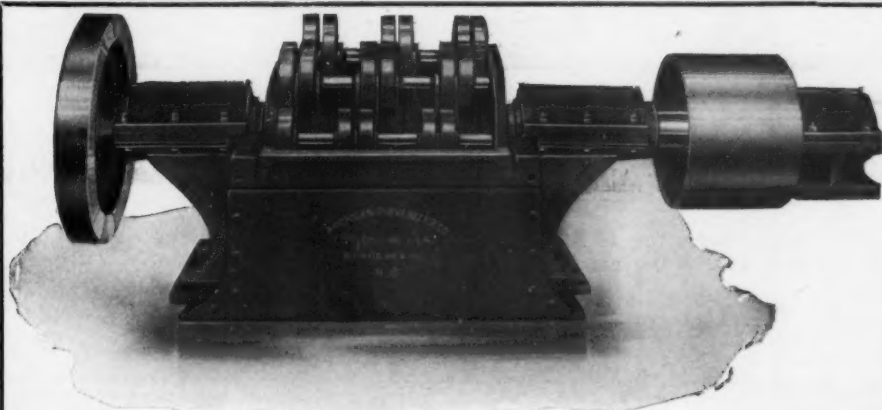
AUSTIN MANUFACTURING CO.

New York Office: 50 CHURCH STREET

CHICAGO

Canadian Agents: MUSSENS, Ltd., Montreal

We manufacture:—Road and Elevating Graders, Scarifiers, Road Rollers, Quarry Cars, Dump Wagons, Stone Spreaders, Street Cleaning Machinery.



THE AMERICAN RING PULVERIZER

THE BEST
THE CHEAPEST
LESS POWER
LESS SPEED
AND
LESS MAINTENANCE COST
MORE PROFIT

A Limestone Company Writes:

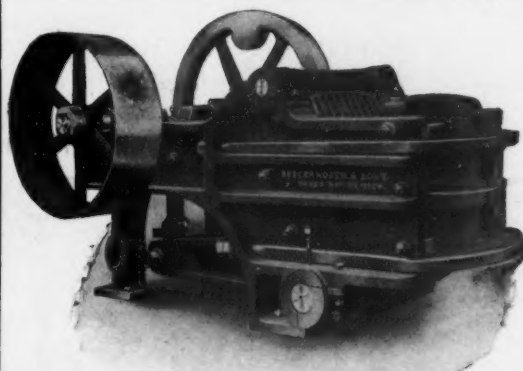
"The two American Ring Pulverizers we installed in March 1910, and January 1912 are still in operation, much of the time twenty-four hours daily, and doing the work to our satisfaction.

We are enclosing our order for one of your largest size, No. 48, Pulverizers. We have made a study of Rock Grinding Machinery, and have used and investigated the various types of Pulverizers. When grinding limestone for soil use, we would not grind finer than 10 mesh, providing the Pulverizer employed will crush from 2 inch to 3 inch cubes and under and will make a large per cent of very fine material, and this result is accomplished by the American Ring Pulverizer, in one operation.

We unqualifiedly commend your machine, because it requires less power, and grinds a ton of finished material with much less up-keep cost."

WRITE US FOR INFORMATION

American Pulverizer Company, E. St. Louis, Ill.



Nippers—17 x 19", 18 x 26", 20 x 30", 24 x 36" and 26 x 42".

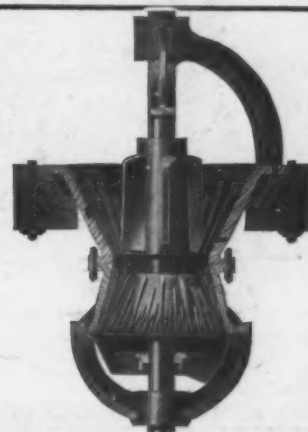
Jaw and Rotary CRUSHERS

For all Rocks and Ores Softer than Granite

GYPSUM MACHINERY—We design modern Plaster Mills and make all necessary Machinery, including Kettles, Nippers, Crackers, Buhrs, Screens, Elevators, Shafting, etc.

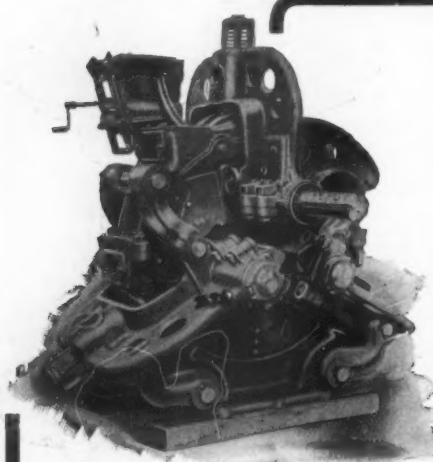
Special Crusher-Grinders for Lime

Butterworth & Lowe
17 Huron Street, Grand Rapids, Mich.



Crackers—6 sizes—many variations.

Tell 'em you saw it in ROCK PRODUCTS



MAXECON

Means MAXimum of ECONomy

Years of experience with the assistance of our hundreds of customers has found THE SOLUTION OF GRINDING HARD MATERIALS. The MAXECON PULVERIZER combines highest EFFICIENCY, greatest DURABILITY and assured RELIABILITY, Uses the LEAST HORSE POWER per capacity. Embodies the features of our Kent Mill with improvements that make it MAXECON.

WE DO NOT CLAIM ALL of the CREDIT for this achievement

We have enjoyed the valuable suggestions of the engineers of the Universal Portland Cement Co. (U. S. Steel Corp.), Sandusky P. C. Co., Chicago Portland C. Co., Marquette Cement Mfg. Co., Western P. C. Co., Cowham Engineering Co., Ironton P. C. Co., Alpena P. C. Co., Castalia P. C. Co., Pennsylvania P. C. Co., and many other patrons.

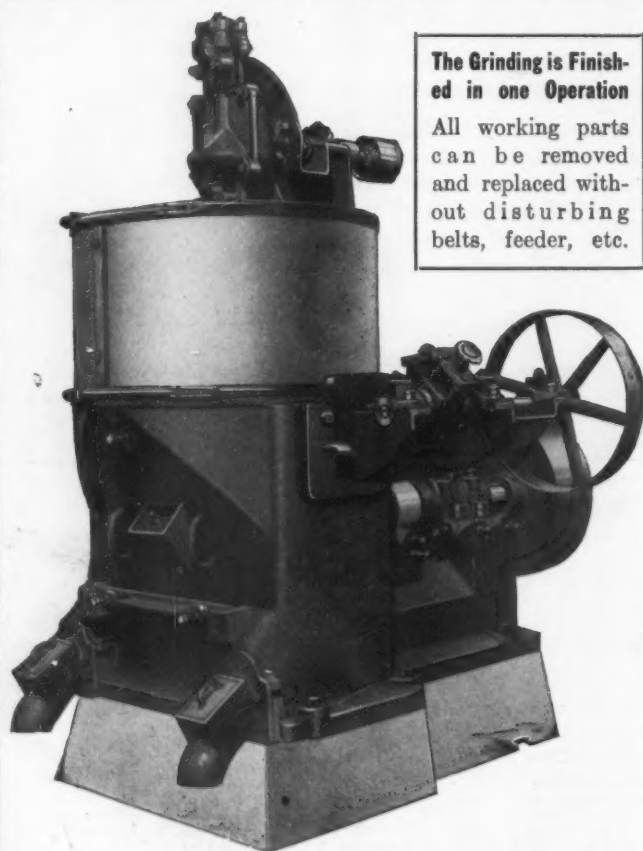
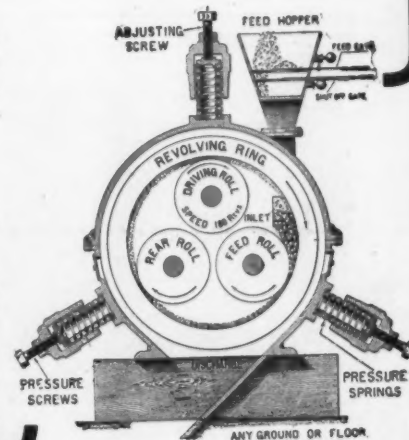
THE RING WOBBLER

The FREE WOBBLING POUNDING RING instantly and automatically ADAPTS its position to the variations of work.

Its GRINDING ACTION is DIFFERENT than any other; besides the STRAIGHT rolling action of the rolls, the SIDE to SIDE motion of the ring makes the material subject to TWO crushing forces and DOUBLE OUTPUT results.

KENT MILL CO.

10 RAPELVEA ST., BOROUGH OF BROOKLYN, N. Y. CITY
LONDON, W. C., 31 HIGH HOLBORN
CHARLOTTENBURG 5, WINDSCHEID STRASSE 31, BERLIN



The Grinding is Finished in one Operation
All working parts can be removed and replaced without disturbing belts, feeder, etc.

BONNOT PULVERIZER

Grinds and Screens Limestone, Raw Lime and Hydrated Lime

Does it at One Operation. Gives You Any Desired Fineness

GRINDING LIME IS LARGELY A SCREENING PROPOSITION. THE BONNOT PULVERIZER HAS THE LARGEST SCREENING SURFACE AND CONSEQUENTLY THE GREATEST CAPACITY.

NO OTHER MACHINE LIKE IT IN THE ACCESSIBILITY OF SCREEN AND GRINDING PARTS.

No. 4 Catalog Explains These Advantages

THE BONNOT COMPANY

909 N. Y. Life Bldg.
KANSAS CITY, MO.

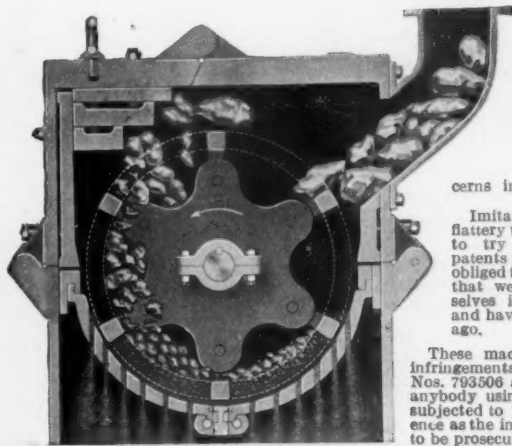
CANTON, OHIO

Tell 'em you saw it in ROCK PRODUCTS

THE GARDNER CRUSHER

For Grinding and Pulverizing Limestone, Feldspar, Oil Cakes, Bone Tankage, Marl, Phosphate Rock, Bricks, Granite, Coal, Etc.

WARNING



We warn our prospective customers against imitations of our machine which have lately been put on the market by two of the largest concerns in America.

Imitation is a great flattery to us but in order to try to infringe our patents they have been obliged to resort to devices that we have tried ourselves in the beginning and have abandoned long ago.

These machines are direct infringements of our patents Nos. 793506 and 1013527 and anybody using them may be subjected to future inconvenience as the infringers are going to be prosecuted.

GARDNER CRUSHER COMPANY 556 West 34th Street, NEW YORK

AGENTS

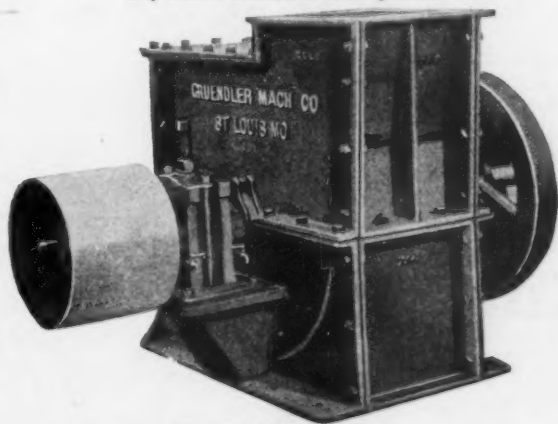
MARSH COMPANY, Old Colony Bldg., Chicago, Ill.

C. O. BARTLETT & SNOW CO., Cleveland, Ohio
W. E. AUSTIN MACHINERY COMPANY, 2 Spring Street, Atlanta, Ga.

GRUENDLER PULVERIZERS

Grind perfectly Limestone, Phosphate Rock, Coal, Brickbats, Coke, Kaolin, Shale, Marl, Fireclay, Bones, Tankage, Fertilizer Materials and Ores of all kinds.

Any Desired Fineness in ONE Operation



One Customer Writes:

"The Crusher works to our entire satisfaction and we believe we have selected the best make for our purpose."

Another One Says:

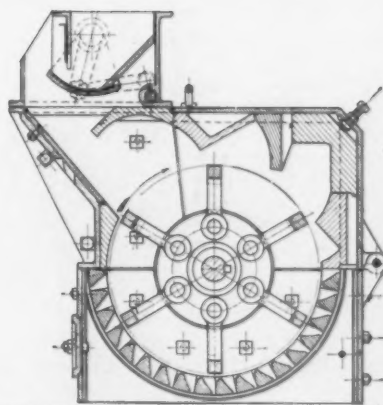
"The two Crushers you have furnished us have given entire satisfaction. We are now considering putting in another machine of larger capacity; kindly state lowest prices and sizes."

We manufacture these machines in sizes from 3 to 400 tons daily capacity. The entire interior is constructed of steel and they are built for great strength and durability throughout. They are easily handled, all adjustments being made from the outside.

Write for Catalog and Prices

GRUENDLER PATENT CRUSHER & PULVERIZER COMPANY
924-928 N. FIRST STREET SAINT LOUIS, MO

Pulverators



Cross Section of Allis-Chalmers Pulverator (Patented)

Pulverizing

by a New Principle

Note that Involute Curve
The Direction of Rotation

Advise us your requirements concerning capacity and fineness wanted

Forward Sample of Your Material

Allis-Chalmers
Manufacturing Company

MILWAUKEE,

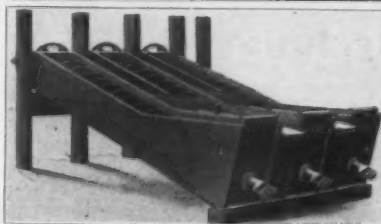
WISCONSIN.

For All Canadian Business Refer to Canadian Allis-Chalmers, Ltd., Toronto, Ont.

TISCO MANGANESE
STEEL CASTINGS

FOR SEVERE SERVICE

TAYLOR-WHARTON IRON & STEEL CO.
HIGH BRIDGE, NEW JERSEY



Sand Washers

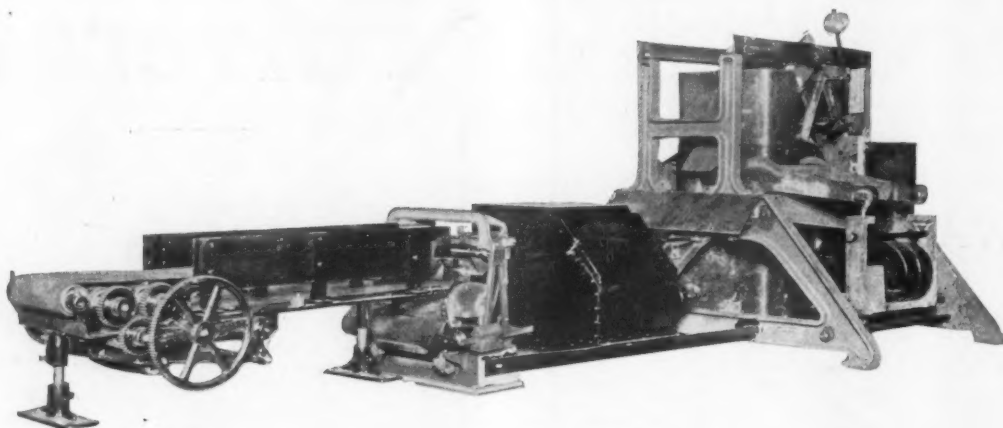
LEWISTOWN FOUNDRY & MACHINE CO. Lewistown, Pa.

Builders of heavy duty crushers and glass sand machinery.

Glass sand plants equipped complete

Write for prices and catalog

Tell 'em you saw it in ROCK PRODUCTS



Cement of the highest quality is only made by the exact required proportions of

CLINKER AND GYPSUM

Your chemist, with this machine, will give the desired result

AUTOMATIC WEIGHING MACHINE COMPANY

134 to 140 Commerce Street, NEWARK, N. J., U. S. A.
439 Pierce Building, - ST. LOUIS, MO., U. S. A.

OUR MOTTO—"QUALITY and SERVICE"

(Prices Always Right)

WIRE, MAIL OR PHONE OR-
DERS TO NEAREST MILL

The National Retarder Co.

SUCCESSORS TO

The Chemical Stucco Retarder Co.
Webster City, Iowa

The Ohio Retarder Co.
Port Clinton, Ohio

The Binns Stucco Retarder Co.
Uhrichsville, Ohio

MILLS AT

Webster City, Iowa

Port Clinton, Ohio

Branch Office, Toledo, Ohio

Tell 'em you saw it in ROCK PRODUCTS



The above 10-ply Leviathan Belt is 132'-3" long and 60" wide. Has been in day and night service since 1897. Transmits 1000 h. p.

Belting that "Makes Good"



You're absolutely right! It isn't so much what a belt is, but what it has done for others in your line of work, and how closely the maker stands behind his belt till it does "make good." This is the plan that sells Leviathan Belting. Write our nearest house for all the facts.

MAIN BELTING COMPANY

Philadelphia

New York
Pittsburgh

Chicago
Seattle

Boston
Birmingham

MAIN BELTING CO. OF CANADA, Ltd.
Montreal Toronto

HOTEL VICTORIA

Broadway, Fifth Avenue & 27th Street

SPECIAL RATE FROM MAY 1st

Rooms with
privilege of bath, \$1.50

Rooms with
private bath, . . . 2.00

ACCOMMODATIONS FOR 500 PERSONS

NEW YORK

American Steel & Wire Company

Triangle Mesh Concrete Reinforcement



L. C. Smith Building, Seattle, Wash.
Gaggen & Gaggen, Architects

IN this modern building about 300,000 square feet of Triangle Mesh Concrete Reinforcement was used.

Triangle Mesh Concrete Reinforcement is made from Cold Drawn Steel Wire. Tensile strength 85,000 pounds per square inch. Furnished in rolls of 150, 200 and 300 feet.

Chicago
Pittsburgh

New York
Worcester

Cleveland
Denver

Export Representative, U. S. STEEL PRODUCTS CO., New York
Pacific Coast Representative, U. S. STEEL PRODUCTS CO., San Francisco
Los Angeles Portland Seattle

Tell 'em you saw it in ROCK PRODUCTS

MITCHELL LIME

has been made for over fifty years. It has always maintained a standard of high quality and uniformity. It is today recognized as the leading high calcium lime.

For chemical or building purposes it will give the best of results.

Two plants with ample capacity and two railroads, guarantee prompt shipments and quick deliveries.

Mitchell Lime Company

Works:
Mitchell, Ind.

1515 Consumers' Building,
CHICAGO, ILL.



Residence of Chas. Fairbanks, Ex-Vice President.
TIGER BRAND used for white coat plastering.

Business Handed to You

That's what it amounts to when
you put in a stock of

"TIGER" BRAND White Rock Finish

Hydrated Lime for White Coat Plastering

Architects for the best building jobs in every territory specify it and you have only to let the builder know that you furnish it. Tie up to a business builder.

Write for our booklet—"Ideal Plastering"

The Kelley Island Lime & Transport Co.
Cleveland, O.



The
National
Lime &
Stone Co.
CAREY, OHIO

Waste Means Loss of Money

WASTE means that you are reaching down into your pocket and meeting leaks that should not exist. For more than seven years we have been expounding the merits of

Monarch Hydrated Lime

As a result, thousands of contractors will use no other. They have learned by experience that it more closely approaches perfection than any other lime, because there is absolutely no waste.

They know that it requires no screening

That it takes more sand; gauges with one-third less plaster and spreads farther and easier than lump lime

These are features that are causing thousands to use Monarch Hydrated Lime. Are you one of this number?

"NESTOR"

SOLID WOVEN WATER PROOF BELTING

BUILT ESPECIALLY
FOR

Sand and Gravel Plants

Write for Catalog Just Off the Press
Kindly Mention This Paper

THE AMERICAN FABRIC BELTING CO.
CLEVELAND, OHIO

Tell 'em you saw it in ROCK PRODUCTS

The Ohio and Western Lime Company

WORKS AT
Huntington, Indiana
Marion, O.
Gibsonburg, Ohio
Festoria, Ohio
Sugar Ridge, Ohio
Tiffin, Ohio
Genoa, O.
Limestone, Ohio
Lime City, Ohio
Portage, Ohio
Luckey, Ohio
Bedford, Ind.

MANUFACTURERS OF AND WHOLESALE DEALERS IN

Ohio and Indiana White Finishing Lime, Ground
Lime, Lump Lime, Fertilizer Lime, Hydrate
Lime, Cement, Plaster, Hair, Etc., Etc.

Capacity
8000 Barrels
Per Day

MAIN OFFICE: Huntington, Ind.

Branch Office: Marion, Ohio.



BANNER HYDRATE LIME

That Made Gibsonburg, Ohio, FAMOUS

MANUFACTURED BY THE

NATIONAL MORTAR & SUPPLY CO.
PITTSBURG .. PENNSYLVANIA

CROWN HYDRATE

HIGH CALCIUM HYDRATED LIME

At present prices you can waterproof, improve the color and strengthen the texture of all cement construction and actually **save money** because the Hydrate **replaces** the same amount of cement (15 to 25%).

Kritzer Vacuum Process

MARBLEHEAD LIME COMPANY

KANSAS CITY

CHICAGO

**"If It Is Lime
We Make It"**

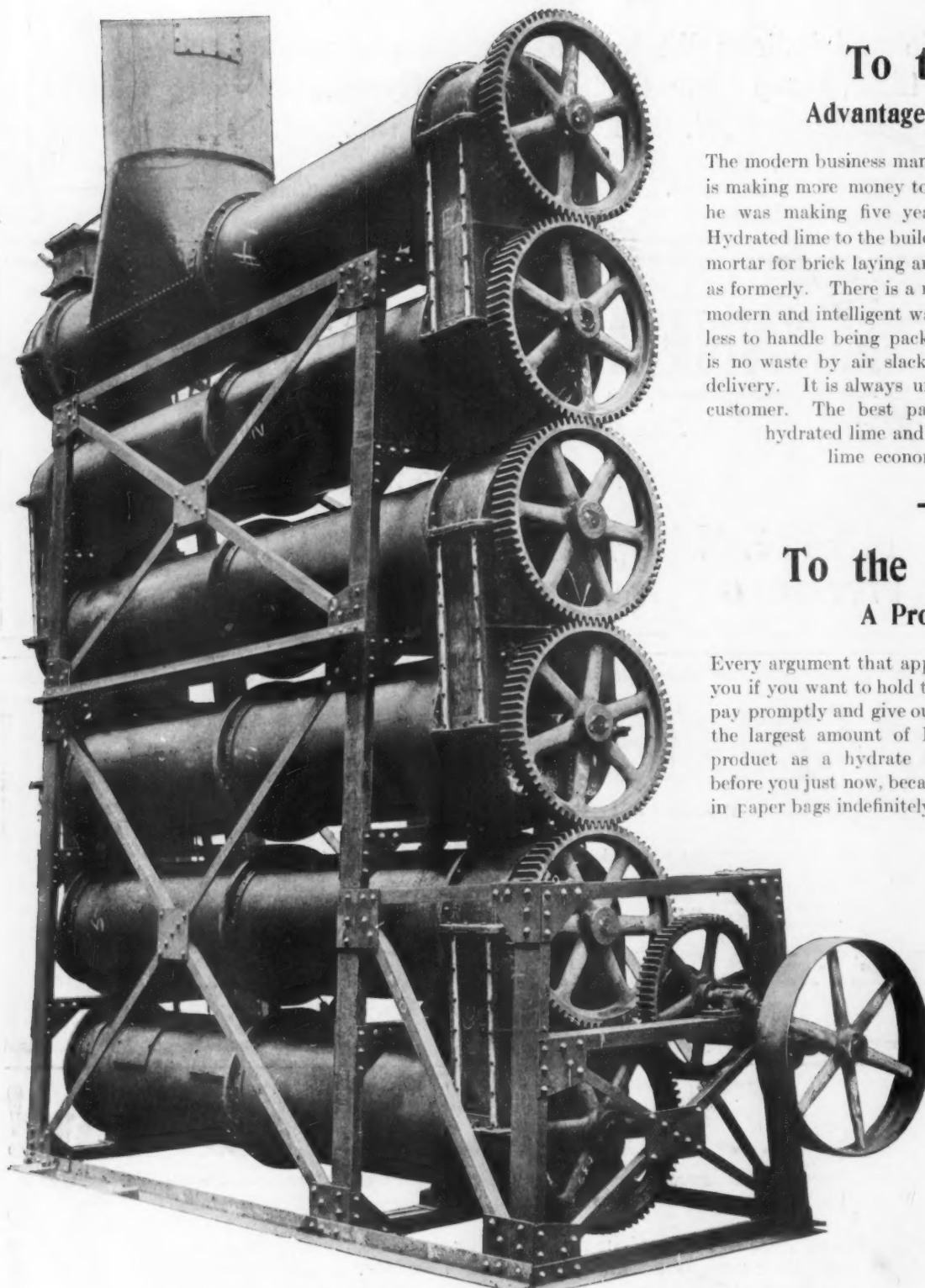
Dealers, Attention!

We manufacture the **Strongest Lime** in Ohio. The reason! Our Lime Stone is of that quality. We can ship straight or mixed cars of bulk, barrels, Mason Hydrate, Lime Flour White Finishing Hydrate, also Clover Grower for improving the soil. Write or wire for prices.

Scioto Lime and Stone Company
Delaware Ohio

Tell 'em you saw it in ROCK PRODUCTS

HYDRATED LIME



KRITZER CONTINUOUS HYDRATER

To the Dealer Advantages in Handling, Etc.

The modern business man who is a dealer in builders' supplies is making more money today out of his lime customers than he was making five years ago, because he is now selling Hydrated lime to the building trades for the purposes of making mortar for brick laying and for plastering instead of lump lime as formerly. There is a reason for this: Hydrated lime is the modern and intelligent way of handling that material. It costs less to handle being packed in neat, strong paper bags; there is no waste by air slacking or by dumping at the point of delivery. It is always uniform and gives satisfaction to the customer. The best paying customers are now demanding hydrated lime and no other. It is the way to sell lime economically and profitably.

To the Manufacturer A Profitable Method

Every argument that appeals to the dealer is doubly forced on you if you want to hold the dealers' business. The dealers who pay promptly and give out large orders are they who are selling the largest amount of Hydrated lime. To sell your entire product as a hydrate is the biggest business opportunity before you just now, because you can store your hydrate packed in paper bags indefinitely so that your kilns can run continuously and you can select your customers more carefully because you don't have to ship your goods the very day that your lime is drawn. To hydrate your entire product makes a dignified business establishment out of your old fashioned lime plant, and the difference by doing business the modern way is gratifyingly profitable.

THE KRITZER COMPANY
CHICAGO ILLINOIS

Tell 'em you saw it in ROCK PRODUCTS

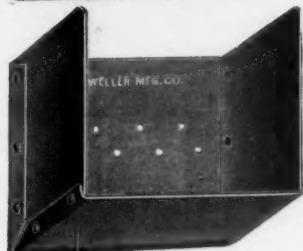
WELLER-MADE

Weller means
Quality
Machinery

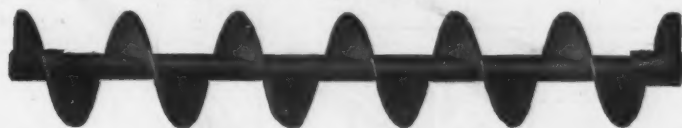
Weller Machinery Represents the Highest Quality and Construction Possible

The use of Weller Elevating and Conveying Machinery means *reducing* the cost of handling materials in quarries, mines and manufacturing plants. This is proved by the large number of Weller-installations and the economy they have effected.

Weller Machinery and "Service" are closely linked. Each in itself represents the *best* and most *highly developed*, until they are fully deserving the *merit* mark of esteem accorded them by users everywhere.



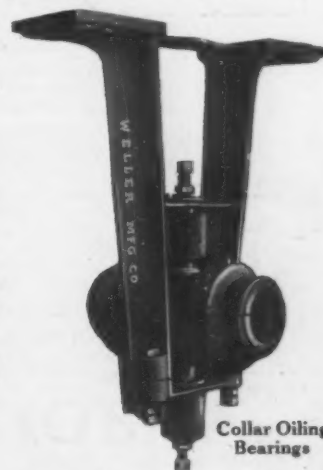
Elevator Buckets



Write for prices and particulars on Weller Steel Elevator Buckets, Spiral and Belt Conveyors, Portable Elevators, Screens, Dump Cars, Car Pullers, Etc.

Friction Clutches, Bearings, Rope Drives, Gears, Shafting, Pulleys, Belting and other Power Transmitting Machinery furnished promptly.

Do not fail to write for our Catalog No. 20; it is fully illustrated and contains much valuable information.



Collar Oiling Bearings

Weller Mfg. Co., Chicago New York Office: 50 CHURCH ST.



Clyde Hydrator with Hood
"The common sense way"

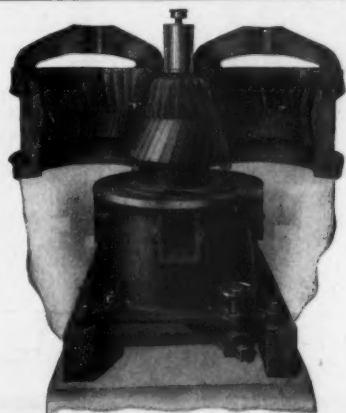
Don't Buy Hydrated Lime

at random; **specify "Clyde Process" Hydrated Lime.** The material that has the qualities **you** want, either as a consumer or a dealer. The presence of this **quality** has enabled Clyde operators to sell 90% of the Hydrated Lime used in America. Insist on getting "Clyde Process" Hydrated Lime, it will put snap into the appearance of your work, it will ginger up a sick selling organization. If your dealer or producer doesn't carry this material, send us his name, we will tell you where you can get it in your neighborhood. We furnish complete "Clyde Process" Hydrating plants with capacities from 1 ton an hour up. Interesting booklets for the asking.

"The Man that put **QUALITY** into Hydrated Lime."

H. MISCAMPBELL, Duluth, Minn.

Patentee and Sole Manufacturer of Clyde Hydrators



STURTEVANT MACHINERY

CRUSHERS

GRINDERS

SCREENS

Thirty Years of Practical Experience has taught us that no one machine is adapted to all purposes. Customers expect correctly designed machines for their special work. Our large line enables one to select properly. It consists of:

CRUSHERS—For coarse, medium and fine work on hard or soft rock. Jaw,

* Rotary and Hammer design.

CRUSHING ROLLS—Coarse, medium and fine. Hard or soft rock,—wet or dry.

TRI-ROLL MILLS—For medium crushing, giving Two Roll Reductions.

RING-ROLL MILLS—For pulverizing hard materials.

EMERY MILLS and HAMMER-BAR MILLS—For pulverizing softer materials.

SCREENS—Inclined Vibrating and Rotary for fine or coarse work—wet or dry.

Sampling Crushers, Rolls, Grinders and Screens.

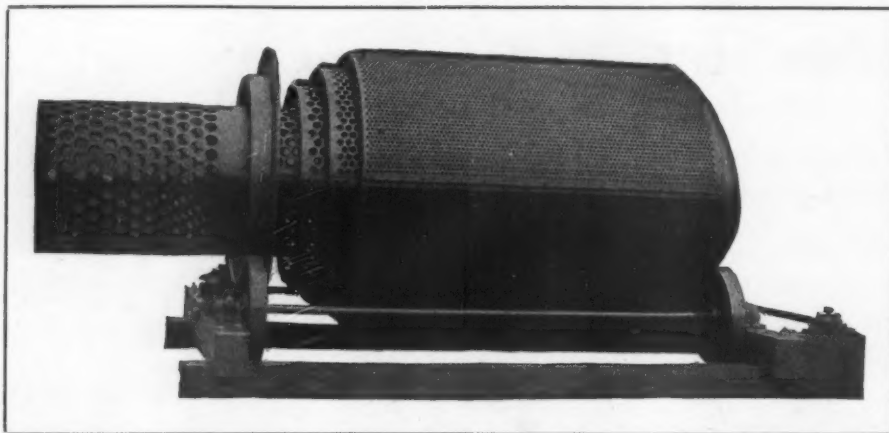
Send for Catalogue.

STURTEVANT MILL CO., BOSTON, MASS.

NEW YORK CHICAGO CLEVELAND DENVER PITTSBURGH ATLANTA VICTORIA, B. C. LONDON ENG.

Tell 'em you saw it in ROCK PRODUCTS

JOHN O'LAUGHLIN'S SCREEN



The advantages of these screens are described in detail in a circular which WE WILL MAIL TO ANY ADDRESS. Mr. John O'Laughlin, the inventor, has designed many notable improvements in rock-drilling, quarrying, crushing and screening machinery, and uses these improved screens in his own crushing plants, which others have declared "to be the most perfect in existence in every detail." The O'Laughlin Screen is an important factor in the most modern and perfect stone-crushing plant.

made solely by Johnston & Chapman, is the

ONLY SCREEN

on the market for wide-awake quarry-men and miners, who want to separate crushed granite, limestone or other minerals, gravel, sand, coal or coke. It will soon earn its cost in saving of repairs, and maintenance, and reduced power, and will do more and cleaner work than any other cylindrical screen of like area. No one can afford to keep old traps in use when the O'Laughlin installed

NOW

will from the moment it starts give a better and larger product, and a big interest on your investment in continuous saving in cost of repairs, renewals, and power. For particulars address:

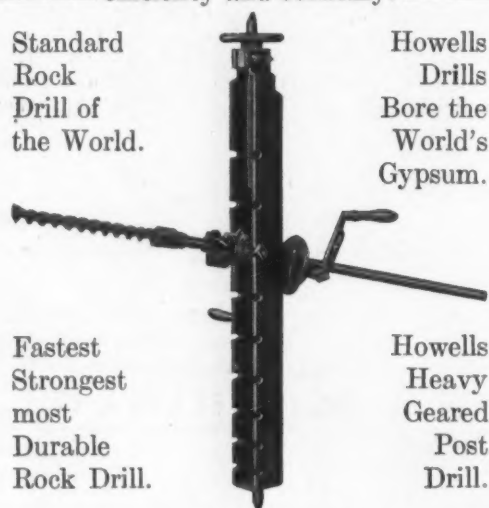
JOHNSTON & CHAPMAN CO.

Corner Francisco and Carroll Ave., Chicago, Ill.

Perforators of Sheet Metals, Flat, Cylindrical, and Conical Perforated Screen Plates for Quarries, Mines, Reduction Works, Mills and all Industrial Purposes.

HOWELLS DRILLS

for all purposes where drills are required. Combine efficiency and economy.



Standard
Rock
Drill of
the World.

Howells
Drills
Bore the
World's
Gypsum.

Fastest
Strongest
most
Durable
Rock Drill.

Howells
Heavy
Geared
Post
Drill.

Thousands of these drills doing duty everywhere — speak for themselves.

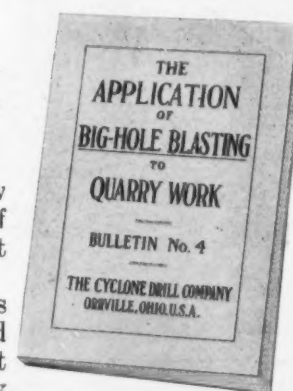
These drills have a record — can't be beat. Will drill from five to seven inches per minute in gypsum or soft rock.

We make over 40 different kinds of Auger Drills, operated by Hand, Electricity and Air.

Howells Mining Drill Company
Plymouth, Pa., U. S. A. :: Write for Catalogue No. 28 today

IT PAYS DIVIDENDS

THIS BULLETIN



It explains just how the big-hole method of blasting reduces the cost of stone.

The analysis embraces not only drilling and shooting operations, but it deals with the quarry plant as a whole and shows how the big drill increases output and reduces cost in ALL departments.

THE BULLETIN contains 68 pages, with illustrations showing 32 plants where CYCLONE DRILLS are earning from 100 to 500 per cent on the investment.

We will be glad to furnish Bulletin No. 4 to all who are interested in high-efficiency plant operation. Send for it.

THE CYCLONE DRILL CO., BOX 630, ORRVILLE, OHIO

Tell 'em you saw it in ROCK PRODUCTS

Prevent Your Concrete or Cement from Hair Cracking with

Bay State Brick and Cement Coating



It excludes dampness and will protect building material from rust and disintegration.

Gives an artistic dull effect which does not take away the distinctive texture of concrete.

Can be used in mills, garages, private houses, hotels, railroad stations and office buildings.

Ask your dealer for it. If he cannot supply you write us. Drop a postal for Booklet J, that tells you all about Bay State Brick and Cement Coating.

It was used here



Waitt & Bond, Boston, Mass.
Denmore & LeClear, Engineers.



Lyon's Shoe Factory, Boston, Mass.
Denmore & LeClear, Engineers.

Wadsworth, Howland & Co.

INCORPORATED

Paint and Varnish Makers and Lead Corroders
82-84 Washington Street - BOSTON, MASS.
New York Office, 101 Park Avenue, at 40th Street

BUFFALO WIRE WORKS CO.

BUFFALO, N. Y.

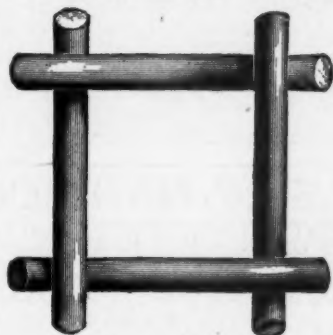
We make

Wire Cloth

From the coarsest to the finest, for all purposes,

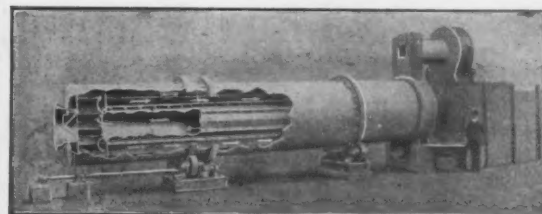
Also

WIRE CONCRETE REINFORCEMENT, WIRE WORK of all kinds, CORRUGATED WIRE "LATHING"



1-Inch Space, No. 4 Wire

Send for Our No. 416 Catalogue.



Section showing direction gases pass through the dryer.

Neither Guesswork Nor Theory

are practiced by us when it comes to solving a problem in drying. We know what we can do for we have been specialists in the drying field for the last 16 years.

RUGGLES-COLES "DOUBLE SHELL" DRYERS

are used in all parts of the world, there being more than 350 installations. Over half a hundred are used for drying sand and gypsum at plaster, brick and cement plants.

We build six regular types of dryers, but for special work we build machines to order.

Book "What We Dry" will interest you.

Ruggles-Coles Engineering Co.

CHICAGO OFFICE
McCormick Building

(37-117)

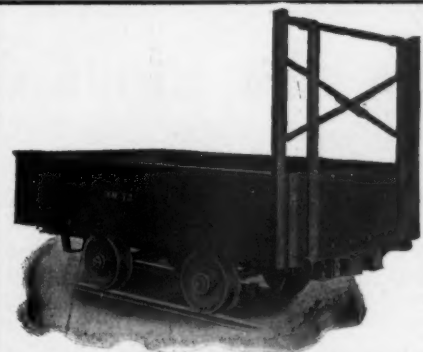
50 Church Street
NEW YORK

"INDUSTRIAL"

The Quarry Cars That Give the Service You Want

Carefully designed and built to give the longest and most satisfactory service under the severest exactions of quarry usage. There is an Industrial Car for every purpose and each is the best of its kind to be had.

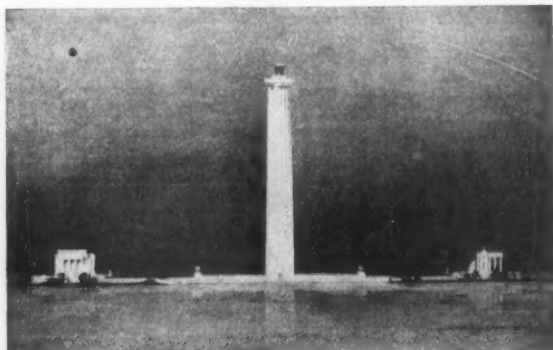
Illustrated Catalogue on Request. Write



The Electric Locomotive & Car Co.

West Park, Ohio

Tell 'em you saw it in ROCK PRODUCTS



PERRY MEMORIAL, PUT-IN-BAY, OHIO

MEDUSA GRAY AND WHITE PORTLAND CEMENT USED IN ITS CONSTRUCTION

Medusa is the first true white Portland cement ever manufactured, can be used for exterior as well as interior work, is perfectly white in color and stainless. It has been used by the U. S. Government in over 50 buildings in the past few years.

Write for free booklets and samples of
MEDUSA WHITE PORTLAND CEMENT
MEDUSA WATERPROOFING
MEDUSA WATERPROOFED CEMENTS
(GRAY AND WHITE)

SANDUSKY PORTLAND CEMENT CO.
SANDUSKY, OHIO



Economy in Lime Burning

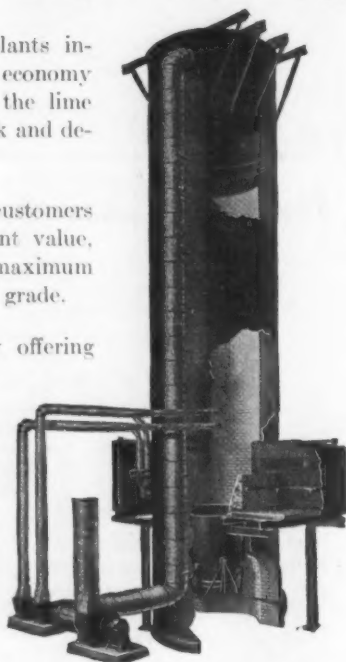
Complete lime burning plants installed, securing the highest economy not only in the burning of the lime but also in quarrying the rock and delivering it to the kiln.

This service assures our customers of obtaining highest equipment value, lowest production costs and maximum output of lime of the highest grade.

We are the only company offering this service with the security it affords the buyer.

Doherty-Eldred Lime Kilns are the key to quality and economy in the actual lime burning.

Write for Bulletin No. 4.



Improved Equipment Co.

Combustion Engineers

Complete Coal Gas Plants
Complete Lime Burning Plants
Gas Producers

EXECUTIVE AND SALES OFFICES
60 Wall Street, NEW YORK
Muffle Furnaces
Special Industrial Furnaces
Refractory Materials

DIRECT HEAT DRYERS

—FOR—

**BANK SAND
GLASS SAND
ROCK, CLAY
COAL, ETC.**

All Mineral, Animal and Vegetable Matter.

We have equipped the largest plants in existence and our dryers are operating in all parts of the world. Write for list of installations and catalogue S. C.

American Process Company
68 William Street, NEW YORK CITY

BACON & FARREL
ORE & ROCK
CRUSHING & WORLD KNOWN
ROLLS-CRUSHERS
EARLE C. BACON, ENGINEER
HAYMEYER BUILDING, NEW YORK



WORRELL'S ROTARY DRIERS

(First Efficient Rotary Fire Driers Built)

DIRECT OR INDIRECT HEAT,
FOR SAND, CLAY, CRUSHED ROCK, GRAIN

and other granular or fibrous matter. High Efficiency, Durability and Simplicity.

IMPORTANT: In sending for prices and printed matter state your required hourly capacity, approximate % moisture in your product, etc., or mail pound sample in tin or glass.

S. E. WORRELL

Established 1879

209 Center St.

HANNIBAL, MO.

Farnam "Cheshire" Lime Co.

OF CHESHIRE, MASS.

MANUFACTURERS OF THE

Celebrated Cheshire "Finishing" Lime

Well known throughout New York and the Eastern States as the finest finishing lime manufactured. The special feature of this lime is its quick and even slacking, thus preventing any cracking or checking when put on the wall. It is the best lime used in the country today for all

HIGH GRADE FINISHING WORK

Selling Department, 39 Cortlandt St., N.Y., C. J. CURTIN, Pres't.

Tell 'em you saw it in ROCK PRODUCTS

Rock Products

ESTABLISHED IN LOUISVILLE, KY., 1902.
DEVOTED TO CONCRETE AND MANUFACTURED BUILDING MATERIALS.

Volume XIII.

CHICAGO, AUGUST 22, 1913.

Number 2

THE FRANCIS PUBLISHING COMPANY

EDGAR H. DEFEBKAUGH, Prest.
Seventh Floor, Ellsworth Bldg., 537 South Dearborn St., Chicago, Ill., U. S. A.
Telephone Harrison 8086, 8087 and 8088.

EDITORS:

EDGAR H. DEFEBKAUGH,

FRED K. IRVINE.

Communications on subjects of interest to any branch of the industry are solicited and will be paid for if available.
Every reader is invited to make the office of Rock Products his headquarters while in Chicago. Editorial and advertising copy should reach this office at least five days preceding publication date.

TERMS OF ANNUAL SUBSCRIPTION.

In the United States and Possessions and Mexico.....\$1.00
In the Dominion of Canada and all Countries in the Postal Union..... 1.50
Subscriptions are payable in advance, and in default of written orders to the contrary, are continued at our option.
Advertising rates furnished on application.

Published on the 22nd of each month.

Entered as second-class matter July 2, 1907, at the Postoffice at Chicago, Ill., under Act of March 3, 1879.

Copyright, 1913, by E. H. Defebkaugh.

Rock Products Reciprocity Club.

For some years past our family of advertisers has been placed before the consumer with our letter of credit attached; in other words, when we get out a daily paper, or any other piece of advertising, we made it our business to emphasize the integrity of purpose and ability "to do" of the machinery and manufacturers of building supplies people using our advertising columns.

We have some new thoughts on this subject which we hope will enlarge the usefulness of Rock Products and help you, and endeavor to get dealers of building material and producers, users and machinery manufacturers to form a band under the name of the Rock Products Reciprocity Club, to put our industry on the strongest basis possible. There are three things we would like to have you do; first, indicate to us that you will be a party to that club. The only requisite necessary is to agree to do business with the advertisers in the paper when you can; second, say a good word for them when you can; third, when making a quotation on a complete plant favor your brother advertisers in Rock Products.

We are going to endeavor to get all the cement, lime, plaster, crushed stone men, sand and gravel operators and building material men everywhere to agree to the same proposition. In other words, if a dealer in Omaha joins our association, that means he belongs to the family. Any information we can give him we will gladly do so, and help him get business in his own town if possible. We are going to continue to encourage doing business through legitimate channels; that is, manufacturer to dealer, dealer to contractor and to consumer. For years past the dealer has always wanted the manufacturer to protect him, but has not always shown his appreciation by joining the Rock Products Reciprocity Club and buying from the friendly manufacturer in preference to the other fellow, where there is a cent's difference in the price, or some small consideration involved that did not mean anything but showed conclusively to the manufacturer that the reciprocity idea in the rock products trade was one-sided, the manufacturer being the goat.

On the other hand, the manufacturer at times has been very careless in his methods in not giving coöperation to dealers who really were entitled to it, because of their every-day actions. Rock Products, the home of the Rock Products Reciprocity Club, the vehicle of that movement for the best interests of our industry, has not hesitated to call the attention of both parties to the desirability of working in harmony and coöperating to the enlarged benefit of the trade. We further emphasize it to you in this movement.

Illustrating the necessity for this organization, Rock Products has never made it a policy to solicit outside business. We have always believed that the cement manufacturer should work in harmony with all allied lines. Rock Products has tried to protect the lines with the products of the quarry as a basis material. The result is that we are the only paper in the trade that has been so considered and we have some competitive lines fighting Rock Products because we won't help carry their burdens. We don't want to carry water on both shoulders.

In forming this Rock Products Reciprocity Club we are inaugurating an endless chain of effort in behalf of your kindred lines, and it is bound to be of benefit to all parties concerned if you will help. Therefore, lend us your ear, your hand and your interest, and we will aid a movement that will level value of building material; will correct many of the injustices caused by carelessness of the manufacturer, or the dealer, and will advance the industry as a whole and the individual at the same time.

Let us get busy. Let us fire at the bull's eye and hit it, and at the end of the season you will see what a difference coöperation really means in advancing the interests of the industry; and that means selling more goods at a fair price and making the sales to the people who are able to pay their bills, and will pay their bills, because they belong to the Rock Products Reciprocity Club, and are working to one end—the promotion of their industry.

Road laws in nearly all of the states are so far behind the times that in this age of progress they do not apply at all. Before any noticeable improvement can be made in road construction the whole system will have to be changed, both as to the providing of funds and to the administration of the same. Road construction has got to be so conducted as to get the major portion, at least, of the money of the appropriation expended for materials and labor upon the physical improvement for which it was designed, and not for inefficient administrative expenses upon the iniquitous "political job" basis. Road building is an engineering, financial and economic problem, and very few men in any community are capable and prepared to secure a return worth the money to the people who have to pay the bills. The physical problems of road building constitute a very large industry representing vast sums of money invested and requiring the highest type of organizations and concentration. It will be well to hear from the men who have built and are building hundreds, yes thousands of miles of roads in our road congresses and conventions of people newly interested in road building. Some practical data will doubtless help to get more roads amongst all the cost of argument and comparison. It is possible that experience may have taught some of the actual needs, or brought out some of the real obstacles in this important matter.

Application Blank.

We are and desire to become a member of Rock Products Reciprocity Club, as well as a subscriber to Rock Products. We will abide by the constitution and by-laws of said club by coöperating on reciprocity lines in the trade.

Name

Address

Rustless, Dustless, Mudless, is the motto of the concrete road. There is no other in comparison thereto.

Very discouraging crop reports from the Western states are causing a little temporary depression. Kansas is dry as a chip, and all the region thereabouts.

Sand reclaiming, washing and grading, has naturally developed into a full-fledged industry, and those who are well equipped find it to be profitable. It is all a matter of equipment.

The first mile of concrete road in Illinois has been dedicated with great enthusiasm. It is the starting of a big era of road improvement, and there will be thousands of miles just like it very soon.

In these dog days when teams, as well as drivers, are hard put to it in making forty per cent of an average efficiency, the value of the auto truck for delivering builders' supplies becomes most apparent. Also note that your customers are yelling into your phone louder for promptness now than at any other season. This is the very time that you most need one hundred per cent efficiency in deliveries if you ever want to get it in your business. You are paying bills on the hundred per cent basis and only getting forty, Mr. Dealer.

One way to judge the intelligence and consequent reliability of your customers is in the purchase of lime. The modern man who knows the world today wants hydrate—he will take nothing else because he wants to secure all the advantages that modern improvement has provided—and he is likely to have his operations figured out so as to know where he is going to be at the finish. The customer who has more confidence in his antiquated putty box and the increasingly inefficient human equation is not well enough informed to make good with his bills in the emulative pressure of these later days.

There are games and games—the insurance game, the workmen's liability game, the railroad freight-rate game, and many more of various kinds, but the building game has got all the worst of them backed off the board; it's the most wicked of all. Building operations can be conducted on a business basis, the same as any other branch of human endeavor. Just think what it would mean to the building material men to do away with that "game" feature and get to doing business with business men. We can help to do just that very thing by working together in such a common cause.

Quarry managers in the lime and crushed rock business find a constant and increasing shortage of labor. Emigrant labor from southern Europe is so nearly worthless as to hardly merit consideration. Every man who operates a quarry is constantly ready to put in equipment that gets around the labor shortage problem in a measure, and it is easier to get men to operate the machines—it has more attractions for American-born citizens. Americans will not work in quarries—they never did, and never will. No more Scotch, Irish, Swede or German quarry workers are coming over, and the children of those who came forty years ago are now Americans, who don't do such things. Since there is this and several other classifications of labor that Americans will never consent to do, we may have been making a mistake all this while by excluding the Chinaman, who prefers the very tasks that our own people must have done for them. Selah!

ARCHITECTS ARE NOT BUILDERS.

A decision having an important bearing on the expenditure of school bond money through California has been received by State Superintendent of Public Instruction Hyatt from Attorney-General Webb, dealing with the matter of whether or not architects whose plans have been accepted for school buildings are obligated to provide bonds to construct the buildings themselves within their estimates in case the contractor's figures go above the estimates.

It is held by the attorney-general that there is nothing in the present law which makes possible an affirmative answer to the question. The law, according to the attorney-general's opinion, does not contemplate that architects shall be builders.

Colonel Chas. P. Light, of Virginia, officially residing in Washington as assistant to the president of the Third American Road Congress, which is to be held in Detroit September 29th and for the week following thereafter, has recently completed an extensive trip amongst the people interested in road projects, road construction and the equipment for road building. He says that everybody along the line is full of business, got lots to do and figuring big operations for the future. But one general complaint is heard,

and that is labor is short everywhere—lots of work, but no workers to be obtained is the principal feature of his observations. Incidentally Colonel Light says that the great congress at Detroit will be the epoch-making occasion of the year in road interests—and he is the very fellow who is holding the blade down against the grindstone so as to know facts as they are.

The Cement Products Exhibition Co. has announced the appointment of George Low as traffic manager for the Seventh Chicago Cement Show. Mr. Low is an able and experienced traffic man. He will render the same kind of service to the exhibitors performed during the last several shows by his predecessor, F. E. Guy. Exhibitors are at liberty to avail themselves of the traffic manager's help and advice in shipping, rating, routing, tracing, teaming and delivery of goods for exhibition.

The United States Department of Agriculture has issued Circular No. 98 from the office of public roads, entitled "Progress Reports of Experiments in Dust Prevention and Road Preservation, 1911." This is a recitation of the results obtained by the use of tars, oil-asphalt preparations, oil-cement, concrete, etc., with explanatory tables. The pamphlet will be found of great interest to road builders.

Rough cast exteriors made of Portland cement mixed with small pebbles or fine quarry screenings have made good from the time of their introduction, and are growing in popularity every day because they are permanently attractive and economical. The range of special treatments in this branch of concrete is only limited by the taste for selection of the builder. Don't be misled by false prophets who discover mysterious rivers far away, but take it from ROCK PRODUCTS, who has never given a "bum steer" yet, that standard specification Portland cement, rough cast, is at once the only dependable and cheapest thing to recommend to your customers. Somebody is sure to be stung if you do otherwise, and it may be you, Mr. Dealer.

Fully eighty per cent of the dealers in building materials are making no charge or estimating no cost for the delivery of the goods sold to their customers. This will seem impossible to many of the big-city modern concerns in the business, but it is, nevertheless, true. The way they look upon the matter is about this way: The team and wagon and driver are here, and the whole outlay is a part of the overhead expense of the establishment. Bills which bring in the revenue are a result directly so of the deliveries, and consequently this kind of cost is indispensable. When they get out their pencil to do some figuring they will find out something. In these days of narrow margins even that dealer who has long been an old-time lumberman will wake up. Some of them need a large sized signal torpedo applied right under the seat of the office chair.

As the Panama Canal reaches completion we are just waking up to the query—Now, what is it good for? There can never be an extensive American merchant marine under our Constitution, or rather the interpretation of the Constitution. No American ship's master can have the kind of legal authority over his ship, his crew and his cargo, that earns profits in long voyages. Not in fifty years could Congress readjust maritime matters so as to make feasible any considerable investment in ships to do business under the Stars and Stripes upon the "big blue." Our Congress is notoriously deficient in all things relating to the sea. We can never hope for any considerable intelligence in this direction because four-fifths of the congressmen never saw the sea or knows any more about it than he got from his Robinson Crusoe in boyhood. Foreign bottoms will have to carry the tonnage whilst our navy does the policing, so we have got to make them pay the cost of operation at least. It makes little difference about the provisions for American bottoms—there are none.

So long as the pollution of streams is practiced at wholesale by every village, town and city as an outlet for sewage, will the water bacteria which purifies those streams be prevented from performing their function. On the other hand, the malignant and insidious bacteria is multiplied and supported to dangerous proportions. Improved sanitation about the home and business premises has tremendously increased both the volume and quality of the pollution of streams throughout the United States. No river water is now fit to drink, or for any domestic use. Nor are river fish fit for human consumption. The streams are all full of filthy solids, and their surfaces covered with the remnants of organic greases in every stage of decomposition. Here's the place for the medical staff to tell the people the truth, and here is a big campaign for the concrete promoters to provide the just-right kind of septic tanks and sewage disposal plants. Knowing how, let's use our knowledge in this most important direction.

CEMENT MANUFACTURERS TO MEET.

The Association of American Portland Cement Manufacturers will hold a meeting in the Ponchartrain hotel in Detroit, Mich., on September 22, 23, 24 and 25. Committee meetings will be held on the 22d and 23d, the regular business meetings occurring on the 24th and 25th. A dinner will be given to the members of the association on the evening of the 25th. During the four days the afternoons will be devoted to inspecting the concrete roads in Detroit and in Wayne county.

Preston K. Yates, consulting engineer, New York City, has been engaged by the Michigan Limestone & Chemical Co., Rogers City, Mich., to investigate and refine the present system of operation at their plant, Calcite, Mich., looking to a much larger output of stone for the coming year. The company has had a large output this season, but as the demand for their special limestone has increased beyond their capacity, they desire to still further increase the output to meet it. Mr. Yates has had a large experience in quarry and mill operation, as well as mill construction and will give his personal attention to the plant for several months.

EDITORIAL CHAT

COMING ASSOCIATION MEETINGS.

American Concrete Institute, Auditorium Hotel, Chicago, Ill., February 16-20, 1914.

American Road Congress, Detroit, Mich., week of September 29.

American Road Builders' Association, First Regiment armory, Philadelphia, Pa., December 9, 10, 11 and 12; tenth annual meeting.

Association of American Portland Cement Manufacturers, Ponchartrain Hotel, Detroit, Mich., Sept. 22, 23, 24 and 25.

Eighth Mid-West Cement Show, Auditorium, Omaha, Neb., January 30 to February 4, 1914.

Illinois Lumber and Builders' Supply Dealers' Association, Chicago, Ill. Date announced later.

Interstate Cement Tile Manufacturers' Association, Chicago, Ill., February 17-19, 1914.

Seventh Chicago Cement Show, Coliseum, Chicago, Ill., February 12-21, 1914.

National Builders' Supply Association; midsummer meeting. Date announced later.

Nebraska Cement Users' Association, Omaha, Neb., January 30 to February 4, 1914; ninth annual convention.

National Association of Sand and Gravel Producers, Chicago, Ill. Date announced later.

National Paving Brick Manufacturers' Association, September 17-18; tenth annual. Statler Hotel, Cleveland, O.

National Conference on Concrete Road Building, Chicago, Ill., February 12, 13 and 14, 1914.

B. C. Hamilton, who recently resigned as treasurer of the Concrete Stone & Sand Co., of Youngstown, O., has been elected superintendent of the Carbon Lime Stone Co., at Hillsville, O.

Charles Graber, superintendent of the shale pit at the Banner Clay yards at Edwardsville, Ill., and a stockholder of the company, has tendered his resignation to the management. Mr. Graber and family will remove to St. Louis within the next thirty days.

Thos. Cosgrove, of Dubuque, Iowa, has accepted a position with the Michigan Limestone Co., of Rogers City, Mich. Mr. Cosgrove had been with the engineering department of the Bonson Dry Concentrating Plant at Dubuque for the past eighteen months.

H. B. Warner, of the Security Cement & Lime Co., Hagerstown, Md., accompanied by his family, is enjoying a vacation at Atlantic City. He notifies us that Gillette is with them and, therefore, there is no necessity to even read the post cards of the high-class barber shops.

E. Schmatolla, the German master of gas producer practice, has just installed a very successful pair of kilns at Fond du Lac, Wis., and has decided to make his headquarters hereafter at Chicago in order to take care of his business in the middle West, which is growing extensively.

Joseph S. Irvin has been made president of the Spokane International Cement Company, Ltd., Spokane, Wash., which is investing a million and a half dollars in its quarries and the cement mill at Irvin, in the Spokane valley. Although his home is at present at Ottawa, Mr. Irvin is an American citizen.

Philip H. Duernheim, of the Glencoe Lime & Cement Co., St. Louis, Mo., was a recent Chicago visitor. His invention of adding a steam attachment to lime kiln practice, after eighteen months is proving very satisfactory in its operation. Mr. Duernheim says the building season at St. Louis is in very satisfactory condition, with all the material people doing a very good business.

Wisconsin employers of labor in most lines of industry are highly interested in the fact that the bill amending the Wisconsin workmen's compensation law passed both houses of the state legislature and has been signed by Governor McGovern. By removing the defense of contributory negligence and requiring all employers of four or more people to accept the law by Sept. 1, 1913, unless they can show good reason to the Wisconsin Industrial Commission why they should not take this step, the state is gradually bringing the greatest proportion of employers under the compensation act. The amended law now classifies the various possible injuries and designates the compensation to be paid.

Robt. Herbert, of T. L. Herbert & Sons, Nashville, Tenn., left last week for Montreal and the Thousand Islands, Boston, Buffalo and other points of interest, including Detroit.

John Blank, who has been chemist for the Lehigh Portland Cement Co., recently resigned his position with that concern to accept one with the Superior Portland Cement Co., at Superior, Ohio.

Percy Wilson, secretary of the Association of American Portland Cement Manufacturers, is making a two weeks' trip through the West, including St. Louis, Kansas City, Duluth and other points.

Dr. G. R. Glenn and J. H. Davis were elected president and secretary-treasurer, respectively, of the Piedmont Portland Cement Co., Lexington, Ky., at a meeting of the stockholders of that concern on July 9.

In the Chicago Manufacturers' Baseball League the team representing the Universal Portland Cement Co. leads with a percentage of 1,000. The Universal team has a clear record of no defeats since the beginning of the season.



HARRY S. WEINBERG, INTERNATIONAL PRAEPOSIT CO., NEW YORK, N. Y.

T. J. Murray, who has been with the Warren B. Ferris Brick Co., Columbus, Ohio, for several years, will shortly be in charge of the brick department of the Thompson-McDonald Lumber Co., Minneapolis and St. Paul, Minn., and it is expected that the brick department of this concern will be materially strengthened under the management of Mr. Murray.

Harry S. Weinberg, of the International Praeposit Co., 45 W. 34th street, New York, N. Y., and at present acting as demonstrator for the powder company, paid a visit to the ROCK PRODUCTS establishment the middle part of August. In explaining the merits of "Praeposit" Mr. Weinberg stated that the powder only explodes when confined, being the result of twenty years' experimental work with this end in view, and that a shattering or compact shot may be obtained. The explosive is calculated to do away with danger and is often shipped by express. The powder may be ignited by an ordinary fuse, blasting cap and fuse or electric detonator, and is shipped in 25-pound tins in the granular form, and 50-pound wooden cases in the stick form, wrapped in paraffine paper. It is claimed that it burns 600 times slower than black powder and is a stainless shot. The company has a mill near New Brunswick, N. J., where it manufactures 40,000 pounds a day, and contemplates building at least three more within the next year. The Praeposit powder has been introduced throughout Europe, the company having mills in England, Germany, Belgium and Scotland. Mr. Weinberg was on his way East, he having made a number of demonstrations in the West. He is one of those cheerful souls with whom it is always a pleasure to come in contact, as many of the largest users of powder have doubtless realized ere this.

B. E. Allison, secretary of the Great Western Portland Cement Co., Kansas City, Mo., was a recent Chicago visitor. He was busy amongst the machinery contingent and full of business, as usual.

H. Schwartz, who has been until recently with the Alsen's American Portland Cement Co. as assistant chemist, has been appointed chemist of the Mason City, Iowa, plant of the Lehigh Portland Cement Co.

Richard L. Humphrey, president of the American Concrete Institute, spent a few days in Chicago last week attending to some of the preliminaries of the meeting of that association, which will be held in Chicago during the coming February cement show.

B. H. Langnerak was recently made general manager of the Western Clay & Gypsum Products Co., Ancho, N. M. Mr. Langnerak hails from Des Moines, Iowa, and takes up his duties in the New Mexican city with a fine record of business ability. He is a young man, full of energy and enthusiasm, and it is predicted that the well-known plant will thrive under the new management.

The annual meeting of the sales force of the Lehigh Portland Cement Co., of Allentown, Pa., was held August 1 and 2 at the Elks' Club, Allentown. The meeting was conducted under the direction of B. L. Swett, sales manager of the company. One of the important features of the meeting was an address on concrete road building by T. R. Ferguson, representing the National Association of Cement Manufacturers.

R. W. Hilles, who has been known for several years as head of the sales department of Samuel H. French & Co., Philadelphia, Pa., announces that after September 1 he will be connected with the Amoskeag Manufacturing Company in a similar capacity. There is no more able man than Mr. Hilles in the line of building materials and mortar and plaster supplies. He has a very wide acquaintance in the trade and is everywhere popular.

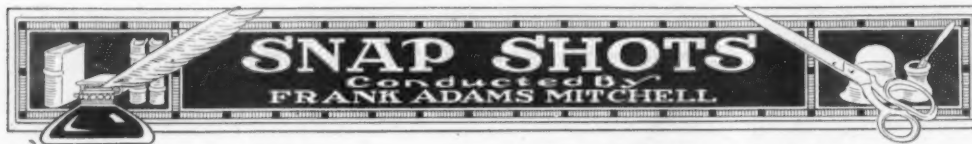
Norman S. Palmer, of Washington, D. C., who is the great pioneer of the concrete block industry, has been sojourning in France for about a year, where he has invented a number of improvements to the well-known Palmer block machine and introduced the concrete block business in many places in that country. He stayed in the country of liquid consonance long enough to get the real Parisian twist to the kind of French he talks.

A. H. Gallagher, of the National Retarder Co., Port Clinton, Ohio, suffered a painful accident July 20, when the large Thomas roadster which Mr. Gallagher and Mr. Weller, of Oak Harbor, were riding in was struck by an interurban car and the automobile was completely demolished. The occupants, however, were fortunately not seriously injured and Mr. Gallagher is now recovering at the St. Vincent's hospital, Toledo, Ohio.

Col. Shea, the redoubtable belt man from Chicago, has made a hit out on the Pacific Coast and is stringing the belt in the Old Mission Portland Cement Company's plant at San Juan, Cal., and many other places in that state. The colonel has been out there so long and is so successful amongst the people of the far West that he has grown to be a veritable Californian, and when you speak to him these days he begins to expand and glow about the salubrious climate of that state.

Joseph Harrison, Flusco-Penrith, Cumberland, England, has been visiting some of the largest lime operations in the United States in order to study American methods in the production of lime and lime rock. He operates a crusher and pulverizer for agricultural purposes in the section immediately surrounding Flusco-Penrith and has burned some lime for agricultural use, and is looking up that particular feature of the lime and quarry interests of this country in order to improve his plant as to its greatest efficiency.

The promotion department of the Canada Cement Company, Ltd., informs us that forty-six concrete roads and streets in Canada have been decided on and the work started, and more than one hundred like projects are in such a state as to promise early final specification, with a certainty of early commencement of operations. Here is achievement and not promotion, as we have been accustomed to see so much in our own country. Our neighbors over the border are stem-winders and we may take a few lessons from them.



UNSPOILED.

I.

Last fall I started George down East to College, and y'know I felt forlorn and heavy when I come t'see him go, But the boy was sot upon it, and I 'lowed I'd let him start. For he's all-fired ambitious, and he's everlastin' smart. The winter months seemed long enough, for John is married now, And Johnnie's wife and I don't seem t' hitch up anyhow, But every week I heard from George, and read his letters o'er Each evenin' after supper a dozen times or more.

II.

He told me of the football games, and how he'd joined a frat, And how he'd put a dozen husky fellows to the mat. Waal, 'twan't surprisin' for my George was raised behind the plow, And stands six two, and weights at least two hundred anyhow. Then 'long in March he wrote that he had won a big debate, And got a scholarship t' boot, and then went on t' state, He reckoned that it would surprise his dad—not much, I knew Thet George would get th' best they was, and gather honors too.

III.

In June I hitched the bay mare up, and drove down to the train, The day was bright and clear t' me, although it looked like rain, But George was comin' home that day, and all the summer through We'd work along together, just as we used to do. But gosh, I hardly knew the boy, fer he was all togged out Just like those faucy city dudes the paper tells about. I couldn't help but wonder as back home we jogged along About sending him to college, if I done right or wrong.

IV.

It worried me all evenin' and I watched him close t' see If he was any different from what he used to be. He acted mighty glad to be about the place again, And asked a question 'bout the corn or cattle now and then. Next morning just as usual, I got up a half past four, Went out t' do the milkin' of my twenty cows or more, And there was George ahead of me, in his same old workin' clothes, And oh! the joy it gave t' me, a father only knows.

V.

That day we worked together, just as we'd always done, George said it wasn't work for him, he called it only fun. But as for me, my heart was full, my throat was choked with pride, And I gloried in the manly son that labored by my side. That evenin' when the chores were done, I set out in my chair Upon the porch, and gazed across the hillside over there Where She is waitin', and I prayed that she might feel the joy, And share with me the love and pride of havin' such a boy.

THE QUESTION.

He held the maiden's hand and said:
"May I the question pop?"
She coyly bent her pretty head—
"You'd better question pop."
—Cornell Widow.

YES, IT WAS FRIDAY.

Jenkins, superintendent of the Killowatt Electric Co., dropped in the other noon to take us to lunch. Jenkins is a genial soul and somewhat of a philosopher, and we always enjoy his company and conversation:

While we were smoking our cigars, Jenkins said, "Say, Mitch, I've got a good story for your philosophy page. Your readers won't believe it, but it's true just the same."

"All right, fire away," we replied, and here is Jenkins' story of what happened on Friday the Thirteenth.

"It began Thursday night. I felt a cold creeping down my windpipe, so I took a good dose of quinine. The next morning, Friday—last Friday the Thirteenth, you know—I felt sort of mean when I got to the office.

"About nine o'clock I had a hurry call to the third floor, and found one of the men with his head laid open about three inches. I gave orders to have him taken care of and was on my way back to the office, when I heard the fire alarm, and in about two minutes the street was cluttered up with engines and innocent bystanders. One of the sprinkler heads got broken down in the basement, so we sent the department back in no time, and I went back to finish opening my mail. While I was doing this my wife called up and told me the doctor said the boy's tonsils would have to be cut out, and it would cost \$100. I hung up the receiver, and was digesting that bit of joyful news when in rushed Jack, the fourth floor foreman. 'Send for the ambulance,' yelled he, and went out like a shot, with me right behind. I found one of his men had broken a big bottle, and his wrist was about half off. He darned near bled to death, too, before we got him fixed up and off to the hospital, and would you believe it? while Jack and I were talking about it the fire alarm rang again. Sure, another false one.

"Well, that was about all up to noon. Have another cigar, for I've just started. I came back from lunch and stopped in the shipping room. Lucky I did, too. They were boxing up some stuff for Atlanta, and it didn't look right. I got the order, and found it was all wrong. A fellow got fired for it, too, so it was an unlucky day for him.

"About two o'clock Jack came in again, and said one of the men running about the punch presses was hurt. I found it was pretty bad, so we sent him to the doctor, and before I could get back to my office another foreman stopped me, and told me the knife of one of the shears had broken. I sent a wire to Cincinnati for a new knife, but that shears will be out of commission till it comes.

"The rest of the afternoon was sort of dull, but I'd had enough, so I went home doggone tired!

"After supper we called up the Smiths and asked them if they wanted to take a ride, so we started out. We had a fine time, except for being stalled about an hour with a blowout; but would you believe it, when we got home we were locked out. You know the catch on our front door gets caught every now and then, and of course it had to go on a strike that night. I borrowed a ladder and hoisted Edward—he's eight, you know—up on the back porch. He had to take a screen out of the window to open it, the screen slipped, he lost his footing, and would have fallen off the roof if I hadn't caught him in time. The screen fell off and hit my wife on the hand and turned her thumb back.

"Well, we went to bed. About eleven the phone rang, and it was Davis, our night superintendent. He called up to tell me that a bearing on one of the line shafts had burned out, so that line would not be running for a couple of hours."

"Is that the end of your tale?" we inquired, for Jenkins was lighting his cigar again.

"Yes, that's about all, although this morning we got a fan in from Detroit, which was shipped yesterday by express, and the bore was 2 inches instead of 2½ inches, as ordered."

"Jenkins," said we, "do you solemnly swear that what you have told us actually happened?"

"I do," said Jenkins.

THE ANSWER.

"Go and question Pop," she said—
She didn't say where to go;
But when he heard her Pop was dead,
And heard of the wicked life he'd lead,
He knew what she meant when she laughed
and said,
"Go and question Pop."

BILL REGULATING CONTRACTING ON PUBLIC WORK.

House Bill No. 581 was introduced in the Legislature at Springfield, Ill., and comprises an act to license and regulate the business of contracting on public work. The bill was introduced on April 17, 1913, was read by title, ordered printed and referred to Committee on License. The bill provides that all persons, firms or corporations making a contract for building any public roads, streets, bridges, culverts or buildings amounting to more than \$300 shall be required to procure a license as a contractor for public work, to be secured from the Secretary of State upon the payment of \$100, the license to be in force one year from date of issuance.

Each application shall be accompanied by a bond to the State of Illinois, in the penal sum of five thousand dollars (\$5,000), with two or more sufficient sureties, and conditioned that the obligator will not violate any law relating to such business. The execution of any such bond by a fidelity or surety company, authorized by the laws of the State to transact business therein, shall be equivalent to the execution thereof by two sureties.

If any person shall be aggrieved by the misconduct of any such person, firm or corporation or association, and shall recover a judgment therefor, such person may, after a return unsatisfied either in whole or in part, of any execution issued upon such judgment, maintain an action in his own name upon such bond therein required in any court having jurisdiction of the amount claimed.

License of contractors for public work shall state fully the name or names of the person or corporation and of each member of a firm or association authorized to do business thereunder, and the location of the office or place of business in case of corporation, shall also state the date and place of its incorporation, the name of the president and other managing officer, and the names of its directors, for the period for which the license is issued. No firm, person or corporation or association so licensed shall transact or solicit business under any other name than that given in the license.

The violation of any provision of this Act shall be a misdemeanor, and if any contractor for public work be a corporation or non-resident of the State of Illinois, then such violation shall be a misdemeanor on the part of any person participating therein as a representative or agent of said contractor; and all persons upon conviction of a misdemeanor, under the provisions of this Act, shall be punishable by a fine of not less than fifty dollars (\$50) nor more than five hundred dollars (\$500) for the first offense, and the second or each subsequent offense by a fine of not more than one thousand dollars (\$1,000) or imprisonment for not more than six months, or both, in the discretion of the Court, and every contract in connection with which such violation shall have occurred shall be null and void.

J. C. SCHAFER INVENTS FEED REGULATOR.

J. C. Schaffer, of Tiffin, Ohio, has recently invented a feed regulator which he has named the "Paid-ometer." This machine was first worked out by Mr. Schaffer in connection with the sand-lime brick industry for the purpose of feeding the sand and hydrated lime into the mixture (and water) of materials for the production of sand-lime brick, but it has since been applied and is applicable to many other industries.

The patent is No. 1059005 U. S., and gets absolutely correct proportion of materials continuously fed. Not only does it do this, but it also tabulates and records the amount of each material handled and the total volume passed through the machine.

The same machine is applicable to silica plants for loading the correct amount in each car and keeping a record of the same shipped each day and each month; also in cement mills for the purpose of assembling the raw materials in their rigidly correct proportions.

It can also be used for the purpose of concrete mixing where the proportioning is required to be done in exact measures; and for feeding tube mills where regular feeds and records are desired.

The feed regulator can likewise be used successfully for loading material into holds of vessels; feeding and measuring crushed coal for boilers and furnaces in correct amount and for record of consumption.

In this machine Mr. Schaffer rightfully considers that he has provided something which is worthy of the consideration of all users of a machine for such purposes as those just described.

Information is wanted from manufacturers of mica crystal grit for facing cement work. Address Edward Baumgardner, 270 West Fifth street, Frederick, Md.

FOR THE RETAILER

OHIO DEALERS AFFILIATE WITH NATIONAL ASSOCIATION.

With the resolution of affiliation with the National Builders' Supply Association by the Ohio Builders' Supply Association, the movement is started for the co-operation of the various state associations with the National association to build up and make of the National body the organization which was the first design of its propagators.

President Edward S. Walton met with the Ohio dealers at their recent meeting at Cedar Point, and with his convincing way of putting a business point carried the meeting with him. The action of the Ohio association will be ratified by the directors of the National organization at the next regular meeting.

The campaign of President Walton has so far been crowned with success. In spite of the fact that he is a busy man in one of the busiest cities of the United States, he has worked for the association like he does everything else—with his whole heart—and the results are beginning to roll in.

It has been intimated that the New York association has already taken up the matter of affiliating with the National organization, and the New Jersey and Connecticut bodies are expected to take similar action as soon as the same becomes practicable.



RHODES AND MURRAY THE NEXT MORNING.

A fair and square recognition of the dealer and a fair and square representation by the dealer of the goods that he handles is the mainspring of happiness, as well as prosperity, to those who are in the important and essential business of distributing the heavy products that go to make up building construction. The unlimited recognition of a creditable and altogether worthy body of representative business men has the effect of eliminating or inviting out of the business the nondescript, unfair teamster element that has always been inclined to pirate on the trade of the legitimate dealer in builders' supplies.

Here's a warm toast to the able administration of President Walton, who is making things hum in the first half of the year.

DOINGS OF NEW YORK STATE DEALERS' ASSOCIATION.

George D. Elwell, the energetic president of the New York State Builders' Material Dealers' Association, reports the following news of the association under date of August 1:

"The latest developments in connection with the association include the incorporation of same under the laws of the state of New York, which incorporation has not yet been quite completed, but will be in the course of the next ten days. We have also adopted new by-laws which include a provision for taking in manufacturers of builders' supplies as associate members at the rate of \$15 for the yearly dues, leaving for the present the regular dealers' membership dues at \$5, with the idea of securing the applications of a large majority of the dealers in the state.

"Our present membership is sixty-eight, which is practically the result of an active campaign conducted by the writer since the first of the year, and I have set the mark for 150 additional members between now and fall and do not see any reason in the world why we should not secure that many new active members, together with fifty associate memberships.

"We are actively interested in securing for New York a new lien law drawn up along the lines of the one just adopted in Ohio, which I understand



A GROUP OF WELL-KNOWN CEMENT FACES.

is quite similar to the Michigan law, and we are also working out a plan for the co-operation of all the dealers in the state in the matter of credits, which is one feature of the business that at the present time needs the attention of everyone in any way interested in the builders' supply business."

LOUISVILLE RETAILERS.

Louisville, Ky., Aug. 18.—Isaac Tyler, with Owen Tyler, manufacturers' agent for a variety of high-grade building products, made a very successful trip through the Bluegrass recently, and succeeded in digging up a number of orders for Monarch metal weather strips, Hytex brick and Pecora mortar stain. The last-named item took particularly well, as it filled a long-felt want with many contractors and builders in the Bluegrass section. Owen Tyler has recently sold several good orders of Raggle coping, a small carload of coping and flashing blocks going into the new powerhouse and laundry at the Seelbach hotel, and Thomas & Whitton, the Louisville contractors, placing an order for half a carload of Raggle block for the William Schuff tannery warehouse in Louisville.

Louisville material men are awaiting with considerable interest the decision of Rommel Brothers, the successful contractors on Parr's Rest, the \$100,000 home for the aged provided for by the bounty of a late Louisville capitalist. The building, which was designed by Captain Brinton B. Davis, will be of a high-grade of pressed brick, with a tiled roof. The general contract has just been let, and the material men are still on the outside.

The Builders' Exchange, of Louisville, sent out unique invitations to the various allied trades for its annual outing, to be held on September 1 at Hike's Point. The missive was sent in a capsule, and read: "Take this pill and then hurry out to the outing: One barrel sunshine, one ton bushwah, one tug of war, one game of baseball, three foot races, six games of quots, H2O infinitesimal, spirits frumenti ad libitum, one continual round of pleasure, one ton of fried chicken, ten bushels of vegetable compound, all production of Gesundheit."

Samuel L. Robertson, a well-known concrete contractor of Louisville, has been nominated on the Democratic ticket for state senator in the Thirty-eighth senatorial district. Mr. Robertson has been a member of the Legislature, and with his election, which is claimed to be practically certain, will receive a deserved promotion.

Cement and lime to the estimated value of \$11,000 will be required by the city of Louisville for the year beginning September 1, and City Buyer R. B. Green is calling for proposals on furnishing these materials to the city.

The R. B. Tyler Company is doing well with its crushed rock business, according to Mr. Tyler, and is getting rid of all that it can produce. The activity of street construction work in the city is largely accountable for this, as for a fair consumption of sand and cement, and the Tyler company, with other supply



SCHMULTZ, ROGERS AND SCOTT.

men who have anything in these lines to furnish, is glad to see the city so busy with the work of improving its highways, as it has made an oasis of activity in an otherwise dry and dull season.

The Louisville Roofing & Supply Company reports that the roofing end of the business is rather dull just now, owing to the comparatively small amount of building which is going on. A line of asbestos pipe coverings is proving fairly good just now with the company, especially out in the state, although in Louisville the same causes which are holding down the demand for building supplies generally are operating to make the demand for pipe insulation slow as well.

EXEMPLI GRATIA.

At the Ohio Builders' Supply meeting at Cedar Point, the Rock Products "camera obscura" was busy and a few of the pictures developed into photographs afterwards. They are printed here as mementos of a very pleasant occasion in which the Ohio dealers first took the progressive step of affiliating with the National association. It is a customary thing for Ohio organizations and people who live in that state to take the lead.

Community Development Company, Chicago, Ill.; capital, \$5,000; manufacturing building materials and do a general contracting business. Incorporators, William F. Tempel, Adolphus E. Bertling and Charles W. Esentrot.

The Eggleston Supply Company, incorporated, of Watertown, builders' supplies; \$10,000; Duane Eggleston, Joseph H. Parks and J. Frank Lee, Watertown.



DONOVAN, MCCAUSLAND AND ROSSITER.

Spiker Supply Company, Scio, Ohio; dealing in builders' supplies, \$10,000; J. M. Spiker, F. A. Spiker, M. K. Spiker, E. A. Spiker and George D. Spiker.

The Waterproof Company, of St. Louis, Mo., has recently been incorporated, with a capital stock of \$3,000. The incorporators are Philip Seibel, Chas. W. Jacobs and B. J. Many.

Oak Contractors' Supply Co., Inc., Manhattan, N. Y., has been incorporated to deal in building material; capital stock, \$10,000. Incorporators: Chas. C. Schmitt, Robert A. Weir and Chas. H. Wenzel, 843 East 225th street, New York City.

Articles of incorporation were filed recently by the Preston-Newcombe Supply Company, St. Joseph, Mo. The capital stock is \$5,000 and the stock is divided as follows: John D. Preston and Eugene B. Newcombe, each twenty-four shares; Lula A. Preston and Jessie M. Newcombe, each one share. The company will handle stoneware, sewer pipe, builders' supplies and coal.

The General Roofing Mfg. Co., East St. Louis, Ill., is increasing the efficiency of its plant this summer and has appropriated \$20,000 for improvements. A considerable portion of this sum is being spent on the work of making the plant fireproof. The company's storehouse is being practically rebuilt of concrete and concrete floors and partition walls are being constructed throughout the plant.

The Insu-Metallic Products Co., St. Louis, Mo., capital stock \$100,000, applied July 22 for articles of incorporation; to manufacture a new line of non-conductive building material. The incorporators are H. F. Vogel, A. Van Hoffman, C. B. Adams, Oliver J. Miller and John Greive. The product is a paper which is claimed to be fireproof and non-conductive of heat or cold.

INTRODUCING A NEW MATERIAL.

The building trades are, generally speaking, highly conservative. The carpenter belongs to a guild as ancient as civilization itself. His forebears in the trade plied their craft centuries before Noah himself took hammer and chisel and square for the building of the ark. And since the Israelites seem to have been put to brick-making, for the most part, in the Egyptian captivity, the honorable occupation of brick-laying is probably no less venerable. These things are doubtless responsible for the conservatism, the reluctance to take up the use of a new thing before it is well tried, which the representative of a novel building material of any sort runs up against in his missionary efforts in a field where his goods are unknown in actual use.

For these reasons the introduction into a new territory of anything in the building line, whether a comparatively insignificant accessory or an epoch-making construction material, is attended with painful incidents in the shape of rebuffs from builders, inability to interest architects, refusals of owners to take a try at the novelty. They all want to be shown, and the daring spirit who is first in the field with a trial is the life-saver of the sales-agent, that is, of course, if he has a really good article. The other kind is not worth discussing.

It is sometimes the case that advertising, carried on in a campaign of education, has to some extent acquainted architects and builders with the virtues of the new material before it comes into anything like general use in their vicinity; and in such cases the man who first takes hold of the territory, whether as traveling salesman, district sales agent or local dealer, has his work partly done for him. In some instances, however, even where there has been some such general preliminary work done by the manufacturer—and there is far too little of it done, by the way—it requires something very nearly approaching actual demonstration to convince a good many of the more hidebound that there is such a thing under the sun as a new thing which is also a good thing.

The plans to be pursued in opening up a new district must, of course, depend somewhat upon the nature of the goods. If they are such as to require technical building knowledge to an appreciation of their virtues, then practically the only avenue of approach is through the architect and the builder, inasmuch as there is no way of creating a demand on the part of the owner himself. But if the material is one susceptible of being boosted before the general public, in a straight-forward, ordinary-English selling talk, setting forth just why it is a good thing and its points of superiority over the old-fashioned article which it supplants, then the consumer himself may be tackled. The owner of the office-building, hotel or apartment-house or the builder of the residence may then be approached, both personally and through the mail, and by the medium of the local press.

An instance of the latter sort was that of the successful introduction into one of the middle Western states of a well-known metal weather-strip. Its merits had been made known to the technical members of the building profession—the architects and big contractors—during the earlier introduction of the strip in the Eastern markets, and they were ready to accept it where the owner would sanction the additional cost. They could also verify the claims made for it by the agent, in the way of saving in fuel resulting, and the consequent comfort and economy combined, no matter how cold the weather. The point of attack, therefore, was obviously the people who owned the buildings, either those already erected and not supplied with the strip or one similar to it, or those who were contemplating the erection of buildings of one sort or another.

Inasmuch as the great majority of people knew nothing about metal weather-strips and were unacquainted with the advantages resulting from their use, the first thing necessary in order to get their ear and make a start toward creating a demand from the bottom up, as distinguished from those cases, as in large office buildings where the architects themselves specified metal fittings for windows, was more education. Argumentative advertising was required, setting forth in plain language the whys and wherefores—"reason-why advertising," as it has been called. The local papers were used, with modest space allowances, and in connection with the other forces of the campaign hammered away their daily message telling of the conveniences and the comforts of metal weather-strips in general, and of this line in particular.

Possibly the most efficient means used of getting definite results, however, especially in the good-sized city where the office of the state agency was located, was the good old card-index, that first and best-beloved weapon of the systematizer. Its compilation was the first problem, and the method used might have been considered somewhat haphazard

were it not for the peculiar knowledge possessed by the manager of the work.

"I happen to be an old inhabitant," he explained, "and I used my personal knowledge pretty freely. Of course our first source of information for jobs immediately pending has been the building inspector's office, where the records of permits for building are available as soon as made. Then the architects' offices are good hunting grounds for prospects, as they usually have plenty that they don't mind giving out. I've found that the architects are generally in favor of the use of advanced ideas in building, especially in the matter of fire prevention, such as our strip tends to. You can't have a fireproof building when the window frames and strips are of wood.

"But after compiling the list of immediate prospects, the biggest job remaining was the collection of a big list of names to keep working on, and sifting down to live ones who could be added to the other list, as those who would need our goods at once and either would or wouldn't use them. Here is where my individual, personal knowledge of people came in. I simply took the telephone book and ran down the line, tossing out names to my stenographer with the addresses, of course, of people whom I judged would be worth going after. The most of them, of course, were outside of my personal knowledge, but I used my knowledge of localities and streets, of business men and houses, so as to size up pretty accurately the standing of the men whose names I put into the index.

"Following them up, when I had them alphabetically arranged in my drawers on cards ruled with spaces for all the information I wanted, wasn't a particularly difficult thing to do. Of course, the company furnishes us with some advertising literature and we supplement this with some of our own, which I think has some little pulling power. Our circular letter wasn't too long, nor too impersonal, and it evidently got itself read in a good many cases. After considerable thought, the reply card I used was one which called for two sorts of replies—affirmative and negative. The affirmative was merely the filling in of name and address under the printed request for a man to be sent to demonstrate the article. The negative, to be used in response to a line at the bottom of the card, was merely to be an indication that the person addressed was not interested in the proposition.

"I decided on this kind of card after thinking the matter over thoroughly, and coming to the conclusion that while it might be possible that a single affirmative answer would be received in fewer cases than detailed answers to a number of questions, the prospects thus secured would be more worth while than mere information not expressing direct interest, and results justified my opinion. Out of something like two thousand letters sent out in one month, we received a little over a hundred requests for demonstration; but more than 90 per cent of these are actual, live prospects, and will result in orders."

The information to be called for on the reply card used in a circular letter campaign is a matter which should be given a good deal of thought. Much will depend upon the personal experience of the sender along these lines, as he may have had good success in getting replies where he asked that one or more of half a dozen questions be answered, whereas his neighbor might, like the metal strip man, prefer a single question. For purposes of directly locating actual prospects—concentrating the campaign at once into a single definite channel—the single proposition is doubtless more likely to receive attention from the person addressed than is the somewhat more impersonal list of six or seven. But, on the other hand, for general purposes, and in order to furnish information for a permanent and growing card index, the more detailed the replies received the greater the results accomplished by the canvass.

On the reply card inclosed with a letter relating to a new building material, for instance, might be indicated answers to the following suggestions: "Do you own your house? Do you intend building? Is this material used in the house you live in? Who owns the house you occupy?" and a dozen others, depending largely on the article being handled, will suggest themselves. From the information thus secured the index can be divided and sub-divided, according to the grade of the prospect, ranging from those from whom orders have been secured, but more may be expected in another season, to the more remote classes who will probably continue to occupy a rented house but may be able to induce the landlord to put in the material or article as a repair or improvement.

A follow-up by means of salesmen is almost essential to the best results. Where, as in the instance quoted, a specific request for a demonstration is procured by means of circularizing, the city salesman has his work directly before him. Men on the road can make the outlying districts, however, where similar requests have been obtained, and do precisely the same work, except that the delay in

getting to the prospect gives time for his interest to cool, or for a competitor, either by design or by chance, to slip in and derive the benefit of the carefully planned campaign of the new man.

The appointment of local dealers to do the demonstrating and selling in the towns outside of the central office obviates this difficulty, and of course tends to a more intensive cultivation of the territory. Considerable care is necessary in the selection of such agents, however, as the appointment of a "dead one" means just that much good soil going to waste. It is usually necessary to make an agent of a man handling other lines of building material, for building material dealers are the most obvious class to which to resort for this purpose. Unless the proposition is such, however, that it is to the interest of the agent to push the material being introduced in preference to his other lines, the best results can hardly be expected, as he is naturally not going to compete with himself against his own interest. He will use the new stuff only as a second string, to be put forward when he has failed with everything else.

The methods indicated cover a fairly complete organization for the introduction of new goods into a specific territory. Educational work through the local and general advertising mediums must of necessity come first; and after this has played its part, the direct approach, the "show-me" stunts and the personal solicitation may be relied upon to produce results in the shape of sales.

MATERIAL MARKET QUIET ON THE COAST.

San Francisco, Aug. 19.—The building material market along the Coast is in worse shape than for several months past. The strong retail demand in the country, which held up surprisingly well until recently, has dropped off, owing to the scant crops in many sections, while the general shortage of money has had its effect on city building. Work of all classes has, in fact, been considerably curtailed, as cities are having unusual difficulty in selling bonds for public improvements, corporation work is delayed for the same reason, and it is very difficult to get money for either small or large buildings. A little more activity is expected this month, as arrangements are being made to tide over the financial trouble. The city of Oakland, for instance, has put out a new issue to replace its unsalable bonds, which were mostly for building purposes; and it is expected that work on the San Francisco city hall and auditorium will proceed without delay.

The July record in San Francisco, \$1,415,819, was over \$1,000,000 short of last year, and most other cities also show a decrease, Los Angeles falling behind by \$200,000, and Portland, Ore., by about \$500,000. Seattle, Wash., is the only Coast city showing a gain, with a July record of \$1,414,620, compared with \$645,325 a year ago.

The Pratt Building Material Company, Examiner building, San Francisco, has been incorporated with a capital stock of \$10,000, by C. F., A. L. and L. H. Pratt.

SLATE PRODUCTION ON THE INCREASE.

According to the United States Geological Survey in an advance chapter on slate, the production of that material in the United States in 1912 was valued at \$6,042,318, which was an increase over 1911 of \$315,299. Of the amount produced, \$4,636,185 represented roofing slates, the production of which was 1,197,288 squares. The roofing slate industry has shown a general advance since the first report of the Geological Survey in 1879, when the number of squares produced was 367,857, valued at \$1,231,221. The record production was in 1902, when 1,435,468 squares were produced and the greatest value was in 1903, when it amounted to \$5,345,078.

In 1912 there were produced 2,898,742 square feet of blackboard material and 4,482,571 school slates.

The Waukegan plant of the West Coast Mfg. Co., roofing manufacturers, is to be shut down and the company will move its plant to 75th and Laflin streets, Chicago. The new plant will be erected at a cost of \$150,000 and will employ about seventy-five men regularly.

The Phoenix Roof and Tile Company has opened its new factory on South First street, Phoenix, Ariz., and will manufacture concrete Spanish mission roof tile. The company already has contracts that will keep them busy for sixty days. James O. Conrad is the manager.

Samuel Cabot (Inc.), manufacturing chemists, has issued to the trade the latest edition of "The Book of 100 Houses," containing more than one hundred photographic views of beautiful country residences, etc., designed by leading architects all over the country, all the houses being stained with Cabot's stains. This book is sent free to intending builders by writing to the company at 141 Milk street, Boston, Mass.

THE WORKING CAPACITY OF MODERN TRANSPORTATION.

[The following article by A. G. Bogardus, of the Abendroth & Root Manufacturing Co., Newark, N. J., builders of heavy service commercial trucks, will be found of pertinent interest to those who seek economy in that important subject of delivery cost. Mr. Bogardus has made an exhaustive study of conditions in respect of this topic and in giving the results of his experience and observations he is rendering a genuine service to the manufacturer and dealer who rightfully labors to reduce the delivery expense to a minimum.]

The subject of motor truck transportation has been approached from every point of view by practically every truck manufacturer, dealer and large user.

In general it may be said that the articles written upon the subject were written from statistics compiled by collectors of catalogues and newspaper clippings. It is but natural that collectors of catalogues and newspaper clippings will give, in the majority of cases, results obtained under the most favorable circumstances and may be taken as being authoritative under conditions which should be published with the statistics and where in general the operation of motor vehicles is handled by competent men.

It is a well-known fact that the average business man of today knows very little in regard to the present transportation operating costs, and in many cases where the transportation has been analyzed by competent men the suggestions have not been carried out, and for this reason the motor truck operating costs are greatly exaggerated above the figure at which economical methods have always shown.

This question in every case may be narrowed down to get the maximum working capacity from the motor trucks employed, and only under exceptional cases may the former horse-drawn methods still employed show a smaller cost, and even when used with motor trucks may show a saving; but at the same time if a special loading, equipment or the re-routing of the deliveries be made, a surprising saving will result and, in nine times out of ten, with the proper equipment for operation the owner's figures will directly coincide with figures suggested before the installation of motor trucks.

With efficient methods of loading and unloading the idle time of the motor vehicle will be greatly reduced. From this standpoint, the trucks will be in operation under full capacity and practically the entire day and the cost per ton per mile under such conditions will be abnormally low.

It is a known fact that with the employment of horse-drawn vehicles the transportation may be accomplished at a smaller cost, but only where the hauls are short and many stops necessitated; but the business is held to within a limit of the working radius of the horse, which is in the average case 15 miles. With the motor trucks the boundaries may be readily extended to a radius of 50 miles, and which when computing the area covered will be eleven times greater than that of the horse-drawn vehicle.

Many contractors and building material dealers have installed special bodies in which quick loading and unloading is easily accomplished. At the present writing a body containing five tons of stone, etc., may be easily emptied in 45 seconds.

By use of pockets for storing stone, sand or other material, the truck may be drawn beneath the pocket and completely loaded within a minute and a quarter. Subtracting these delays, the running time of the truck is often over 99 per cent of the entire working day; but on the other hand, if the installation of such trucks is of limited number, the cost of pockets may be unwarranted. In such a case the motor tractor has proven to be by far the most economical method; this is nothing more than a motor truck of short wheelbase, upon which a fifth wheel is mounted and which is worked in conjunction with a strongly built dump wagon, which may be easily attached or detached from the motor tractor.

By using such a tractor with two semi-trailing bodies, one of these bodies may be in process of being loaded by hand while the fully loaded body may be drawn to its destination by the tractor. This type of transportation is now coming into general use. In general, however, poor results are shown when more than one trailer has been drawn by the motor tractor, for the reason that excessive vibration and draw-bar play has not only damaged the semi-trailer but may incapacitate the truck itself. The use of one of these semi-trailers has proven very satisfactory, however, and will within the next few years be in universal service for all types of con-

tracting work, building material transportation and similar lines of service.

The most economical type of semi-trailer which is now in use with great success and which has been operated upon very low maintenance cost, is that in which a three-ton chassis is employed, with two five or two seven-and-a-half-ton semi-trailers. This type of semi-trailer has two large wheels with steel tires which carries 70 per cent of the entire load.

The fore end of the semi-trailer has a fifth wheel incorporated with a large king pin and side arm, under which a jack may be placed; then by loosening the king pin and jacking up the fore end of this semi-trailer the entire body can be quickly demounted and in a position for either hand loading or for loading from pockets. The tractor itself may then be taken to the second trailing body of this type, backed under the king pin, and if the fifth wheel plate is within 6 inches in any direction of the trailer king pin, the latter may be dropped into position by lowering the supporting jack. The king pin is then locked by a simple toggle-joint action, making it ready for the next trip.

This scheme has been still further worked out in one or two instances where a small pair of wheels, with a fifth wheel situated over the axle upon which the fore end of the semi-trailer body may be lowered, is then drawn by horses to the loading pockets or several storage piles. This has been used where several sizes of stone or gravel must be collected from various points in the loading yard. The entire time taken by the motor tractor in changing the empty body for the loaded body is less than five minutes, so that the delay for loading is very slight.

Unloading this type of semi-trailer is accomplished by either a rear dump or the old-fashioned center dump, operated either by hand or a simple movement of a lever connected with the truck mechanism.

The entire original cost of such an outfit as that of one close coupled three-ton chassis, fitted with a fifth wheel arrangement, and also two semi-trailer center dump bodies, of five-ton capacity, is approximately \$4,300, which is less than the original cost of one five-ton chassis without the body. Economy is shown, even after the original cost, with that of a three-ton chassis and even two seven-and-a-half-ton capacity trailers, as this tractor is capable of making faster time upon the road and a lower maintenance cost over that of the five-ton truck, and may be more easily handled in the loading yard when changing bodies. The wear on tires is much less than that of a five-ton truck, and for these reasons this type of transportation for sand, gravel, stone and cement will be generally accepted as the most economical method within the next few years.

There is, however, one disadvantage with this type of semi-trailer, in that excessive up-grades with a loaded semi-trailer should be eliminated as far as possible. A grade of 12 per cent has been easily overcome, but above this grade an especially designed motor tractor must be used in which a larger motor and lower gearing has been incorporated.

EDITORIALS BY OUR READERS.

The management of ROCK PRODUCTS is in no way responsible for statements made or opinions voiced in this department, which is introduced as the open forum for the discussion of those intimate matters connected with the trade which develop as features of importance to the individual.

The Question of the Hour.

Step into any Chicago material dealer's office and ask what he mostly thinks about, and his honest reply will be, "to cut or not to cut." Like Banquo's ghost, the question will not down. Day and night it protrudes itself on his mind. While he watches his competitor, whose yard is many miles from him, serve a job across the street from his own yard, he knows the job has been taken at cost, or less; and so, after brooding over the situation, he goes his rival one better—and thus the merry war is on.

The contractor knows that he has the dealer panicking and on the run, and to help the cause along, what he doesn't know he invents; and the God of Reason, observing the frantic efforts of the dealer to corner the market and at the same time keep out of the hands of the sheriff, exclaims, "What fools these mortals be!"

The last issue of ROCK PRODUCTS asked: "What is the matter with our business?" and on the following page some one answered it by damning the cement manufacturer. Is it not possible that these two articles are but explaining the growth in the dealer's mind of the spirit of "Come, let us reason together?"

The dealer, under ordinary circumstances, is a plain, fair-minded, good business man. It is only when he becomes bitten by the microbes of jealousy and spite that his reason totters, and all he can think of and say is "Get the job."

The trouble with the ordinary dealer is that he does not think. He may think he thinks, but he doesn't. For the moment he thinks he wants the

job, but a deeper thought would show him that in a week or a month hence he would think he did not want it, for his cutting has only made the other fellow cut still deeper. Cutting prices is like sowing tares. The cut prices multiply faster than good seed, and pretty soon the field is nothing but tares, and tares of the rankest kind.

Chicago once boasted of having the finest trade organization in the country. It was composed of seven firms, and weekly seven men, representing these seven firms, met around the dining table, broke bread together and discussed the affairs of their particular businesses. No attempt was made to ignore or evade the law and these seven men grew together as brothers. They ate and played together and shoulder to shoulder they assisted in staging, managing and bringing to a successful issue two of the most stupendous expositions that this country has ever seen. Their little association was the talk and admiration of other cities and they were looked up to for council and advice. Their business was flourishing, their accounts showed a profit, their customers were satisfied, and not a person on the outside sought to do them or their association harm. But a serpent came in this business Eden; these seven men deliberately threw away their good fellowship, their comradeship, their trust in each other, and incidentally two or three hundred thousand dollars per year.

Can you beat it? Are they men, or are they children?

The money loss is purposely mentioned last because, in the writer's opinion, that is the least they did lose. Every one of these seven men is today mentally and morally poorer for the loss of his business friends. The distrust of his business associates has weakened his mental and moral fiber that much.

Think it over. Reason it out. What have they gained by dissolving? What has the world gained by this separating and mental distrust? What does any dealer gain by looking upon his business associate (I do not like the words rival or competitor) in the same manner as he would look upon one who tries to poison the family well? What does the other fellow gain by acting so as to cause thoughts of hate and suspicion?

Until the next issue, then, think—think it over and talk less.

Chicago Building Material Dealer.

Editor ROCK PRODUCTS:

From the dealers' standpoint the Portland cement situation in Chicago is most unsatisfactory and perplexing, the margin being about 18 cents a barrel to warehouse, deliver, gather up empty sacks, prepay freight on return of the same and in many cases credit the contractor with bags that will not be accepted by the manufacturer, to say nothing of the trouble and expense of collecting the account.

This 18 cents a barrel is simply what the manufacturer considers a cartage cost. Some of the larger retail dealers are only too willing to make deliveries where the haul is from five to six miles. This condition has existed for three or more years in some of the districts more or less separated from the city proper. The dealers have tried to get a margin commensurate with the existing conditions, but owing to the policy of the aforesaid retailers, who seem to be trying to do all the business, the dealers separated from the city proper have been unable to get the desired margin they feel they are entitled to. Now, Mr. Editor, the writer feels you can help to a great extent among the retailers to bring about a movement that will place before the manufacturers this matter in a light that will be most beneficial to all concerned, without doing injustice to the public. "A fair wage for a fair day's work" is a golden rule that should apply to the world over and I believe the application of this fits the retailer of builders' supplies of Chicago.

A South Chicago Builders' Supplies Dealer.

Editor ROCK PRODUCTS:

It would be better for the dealer, and also the manufacturer, if the manufacturer did not sell to the contractor who handles the job, but sell to the dealer and then let the dealer sell to the contractor, giving the dealer a reasonable margin of profit, which has become smaller every year until now only teaming is gotten out of it, making it hardly worth while handling cement. What we have found, which pertains chiefly to very big jobs, is where the manufacturer sells direct to jobs to protect his brand of cement. It is in these instances where it hurts the dealer the most, the contractor having gotten a very low price on a previous job, he thinks he ought to get it at the same price, and not getting it leaves him under the impression that a dealer has a much larger margin of profit than he actually has.

Cement is one of the leading building materials we have to carry and calls for a heavy investment of money and still the profit we make in handling it is hardly worth taking note of. The trouble up to the

present time has been that no co-operation existed between the city and country retailer. With complete co-operation, this condition would be remedied and the cement manufacturers could be gotten to see the necessity of catering to the retail dealer exclusively.

A Large Retail Builders' Supply Dealer.

Editor ROCK PRODUCTS:

Conditions in the Portland cement situation in Chicago have been steadily growing worse for some years, until at the present time the retailer is obliged to handle cement and the only thing he gets out of it is the teaming. The margin he has is barely 18 cents a barrel and on big jobs the leading companies manufacturing cement sell to the jobs direct, cutting out the dealer entirely. And yet the dealer is expected to carry a large stock, making a heavy investment of money a necessity, gather up the empty bags and in many instances credit the contractor with bags which are refused at the mills on account of the bad condition on their arrival, prepay freight on them when they are returned and further assume the trouble and expense of collecting the account.

It can readily be seen that this margin of 18 cents a barrel, when these items are taken into account, dwindles to an invisible point; and with other overhead expenses which cannot be ignored, the handling of Portland cement in Chicago by the retail dealer is done at an actual loss and other building material he carries is relied upon to keep him from going to the wall.

The fact is, the average retail dealer would be in better shape in the conduct of his business if he did not handle or sell Portland cement. The existing conditions prove a burden to the retail dealer, which he will not be able to bear indefinitely. It is to be hoped that the manufacturers of cement will seek to find some way to relieve this perplexing condition.

A North Side Dealer.

Moderate reaction in building construction was sure to follow the high totals of the past few years. Permits were taken out in seventy-eight cities in July, according to official reports to Construction News, for the erection of 18,148 buildings, involving a total cost of \$66,812,093, as against 19,413 buildings at a total cost of \$80,866,633 for the corresponding month a year ago, a decrease of 1,265 buildings and \$14,054,540, or 17 per cent.

Cities	No. of Bldgs.	Estimated Cost	No. of Bldgs.	Estimated Cost	% Gain	% Loss
New York (Boros Man. and Bronx)	876	\$10,455,780	1,200	\$10,740,834	..	3
Chicago	418	6,035,000	1,200	10,365,800	..	41
Boston	418	4,230,000	355	5,280,000	..	18
Philadelphia	1,151	3,480,700	1,357	3,456,500
Los Angeles	1,337	3,334,214	1,429	3,565,014	..	7
Brooklyn	1,066	3,400,000	..	3,968,534	..	27
Cleveland	916	2,445,455	757	1,838,501	..	80
Detroit	378	1,817,077	490	3,031,476	..	40
Milwaukee	437	1,415,819	579	2,452,725	..	42
San Francisco	785	1,414,605	748	645,525	..	119
Seattle	134	1,307,089	249	1,994,336	..	5
Newark	501	1,120,566	519	1,280,513	..	13
Indianapolis	595	1,054,970	580	879,965	..	19
St. Louis	746	1,043,740	905	1,784,665	..	20
Hartford	81	970,053	130	615,550	..	57
St. Paul	378	933,655	361	803,989	..	16
Buffalo	409	908,000	489	1,318,000	..	31
Kansas City	332	857,475	369	884,526	..	35
Portland	515	851,805	676	1,490,126	..	44
Dallas	170	806,350	178	847,700	..	132
Pittsburgh	290	777,128	408	1,186,745	..	35
Washington	417	700,160	490	1,829,501	..	19
Akron	363	707,253	379	646,130	..	6
Toledo	246	671,605	216	637,980	..	5
Oakland	320	680,588	293	435,616	..	53
Wilmington	59	623,449	44	712,603	..	197
Cincinnati	1,112	582,436	1,194	971,214	..	40
New Orleans	..	563,500	..	379,296	..	40
Tacoma	..	529,599	..	144,194	..	367
Rochester	318	511,735	374	831,166	..	45
San Diego	284	485,380	349	898,977	..	59
Atlanta	337	434,943	339	1,039,551	..	58
Columbus	284	421,945	245	423,883	..	5
Harrisburg	32	409,055	37	761,625	..	135
Baltimore	131	394,081	260	781,909	..	50
Omaha	121	392,525	173	569,329	..	31
Worcester	145	385,999	149	658,192	..	41
Birmingham	102	379,317	154	327,761	..	16
New Haven	102	364,486	119	334,505	..	9
Louisville	222	348,980	214	1,075,910	..	68
Cedar Rapids	63	319,000	48	315,450	..	1
Albany	263	315,770	271	419,241	..	24
Memphis	242	304,265	310	600,609	..	55
Springfield, Mass.	106	274,236	149	673,425	..	59
Norfolk	66	273,898	81	230,288	..	18
Fort Wayne	74	256,100	70	215,550	..	16
Paterson	57	235,590	54	215,610	..	19
Sacramento	77	251,013	50	286,681	..	12
San Antonio	245	244,963	240	215,095	..	12
Grand Rapids	163	242,793	150	204,988	..	16
Duluth	183	236,413	162	481,015	..	61
Pasadena	..	215,252	..	200,022	..	8
Youngstown	88	201,470	154	445,519	..	55
Peoria	45	199,275	34	244,600	..	18
Charlotte	45	181,353	42	45,000	..	23
Sioux City	73	174,986	81	204,490	..	63
Spokane	76	168,765	104	226,125	..	25
Troy	90	167,840	49	56,315	..	196
Salt Lake City	90	149,740	82	430,185	..	64
Richmond	107	147,435	126	1,384,099	..	61
Jacksonville	70	140,490	95	359,865	..	46
Saratoga	67	133,510	50	124,637	..	7
Berkeley	70	133,000	80	166,400	..	23
Evansville	109	122,990	99	56,312	..	44
Lincoln	62	126,175	54	132,600	..	5
Topeka	52	115,177	36	76,882	..	48
Tempe	125	110,183	117	74,389	..	48
Portland, Me.	41	98,015	48	101,890	..	4
Stockton	37	89,095	33	114,715	..	33
Davenport	36	81,650	39	85,200	..	4
Springfield, Ill.	35	81,075	54	275,175	..	76
Pueblo	13	74,070	34	419,233	..	82
South Bend	30	57,826	40	912,788	..	79
St. Joseph, Mo.	48	57,109	83	92,273	..	38
Nashville	39	56,865	39	138,707	..	58
San Jose	38	55,090	45	46,315	..	46
Colorado Springs	33	24,680	35	44,875	..	45
Totals	18,148	\$66,812,093	19,413	\$80,866,633	..	17

THE FALLACY OF PRESENT-DAY FIRE INSURANCE

By common consent in the last half of the century industrial insurance has been considered by conservative business men as one of the acknowledged and accepted factors of conducting a manufacturing business. The men in the management of the industries have faced the insurance problem fairly and squarely, counted the cost, estimated the value of insurance and have steadily and constantly paid the rates that the insurance companies charged in their premiums for fire protection.

But the insurance side of the transaction has never been conducted on the square. With loud sounding pretensions and with a great blare of trumpets the insurance people have taken the money and, in some cases, for advertising purposes they have paid insurance losses; but never have the fire insurance representatives of the country done the fair and square thing with their customers. One is constantly reading in the daily press of this or that instance in which insurance was forfeited by reason of technicalities after the premium was paid and the man who paid the premium felt that his fire insurance was assured.

Quite recently a fire occurred at the plant of the United Kansas Portland Cement Company, at Iola, Kansas. There was \$10,000 of insurance upon which the premium had been paid—\$5,000 each in two companies. It appeared upon investigation that a clause in one of these policies gave no permit to shut the mill down, and thereby became void when the mill stopped running.

The other policy permitted a shutdown for a year upon notice, but provided that the mill should be insured for 80 per cent of its value. Consequently the mill, being valued at a higher sum, was never insured for 80 per cent of its value, and that policy was void at the time it was issued and the insurance company simply took the premium and sold the cement company a policy which was merely a printed pretense without value.

The other policy, which provided for the mill to be in constant operation, is quite as bad and quite as dishonest, for the simple reason that mills are operated when it is profitable to run them, and when it is unprofitable for commercial reasons they must close down on account of market conditions.

But insurance which is a co-operative indemnity against loss by fire, to be honest must be continuous throughout the period named by stipulation in the policy. In the case just mentioned the cement company paid the premium upon two policies for \$10,000 of insurance protection. They had a fire to some extent and the insurance companies came around offering them from \$700 to \$800 in full settlement, in place of the \$10,000 for which they received the company's premiums, which was the pro rata share for a risk of \$5,000 in each case.

It is quite as dishonest for an insurance company to give a policy which is worthless at the time it is issued as it would be for them to take the money out of the safe and make off with it. A company that issues such a policy should not only be barred from doing business within the state where such policies are permitted by the state insurance examiners, but the agents, clerks, officials, actuaries and managers of such companies and dishonest financial establishments should be sent into penal servitude and their assets distributed by the rule of pro rata to the policy holders and such an establishment so stamped out of existence.

Such practices are a block upon modern business in a civilized country. The night riding robbers of the middle ages are not to be compared to this dangerous menace to the safety of vested capital in our American industries, for the reason that these insurance sharks work through a system of first gaining a man's confidence and then abusing that confidence year in and year out until the day of calamity comes, when the man who is deceived wakes up to the falsity of the entire situation. The cut-throats and cut-purses of the ancient highwaymen never had the confidence of any honest man. They were a known menace, a feature that had to be contended with and always guarded against.

These insurance marauders merely take a man's money because of his confidence in their integrity and the integrity of the state inspection, and he must depend upon others to do all those things for him. Nearly all of the states have a system of insurance inspection which is considered to be by all honest men designed for the purpose of keeping unreliable and dishonest insurance plans and companies from doing business in the state, and the fact that a company commences offering to take business is a stamp of approval of such inspection and helps to steal away his confidence and his judgment, so that he places insurance where there is no intention on the part of the company to make good the losses, if any should occur.

In the matter of industrial insurance, as well as any other insurance, the amount of the policy for which

the company accepts the premium of the policy holder in good faith must be made the terms of settlement, regardless of whether the thing insured was worth that amount of money or not. This would make the insurance companies refuse to issue a policy for a larger sum of money than the thing insured is known to be worth. This cannot be done without the careful inspection of the premises or of the stock of goods or of whatever thing may be insured, and the acceptance of premium money on any other basis is dishonest in its first inception, dishonest in its final intention and always ends in a disappointment, if not a crime, when the day of disaster arrives.

By reason of the fact that more than 98 per cent of all the construction of buildings of every kind in this country today is entirely of wood, the fire losses as shown by the statistics throughout the United States are so enormous and so alarming that they can scarcely be measured as the expression of the doings of intelligent people. The fire insurance companies are largely responsible for that will-o-the-wisp known as "slow-burning factory construction," and because such a type of construction is recommended by an insurance board they make a better rate upon that type than they do upon a building which is much more immune from fire by reason of the application of ordinary intelligence in the use of incombustible material; and the specifications so made by the insurance companies have led the major portion of the manufacturers of this country to build their factories by the specifications of that type of construction which the insurance companies recommend, in order to get the lower rate which follows the use of such specifications.

The specifications, by the way, contain recommendations for the use of various materials and systems of construction in which the insurance people themselves are financially interested or from which the insurance people get a direct or indirect revenue, so that in complying with the specifications the factory builder is contributing substantially to the insurance magnates or underlings by following the specifications, and in return he gets a lower rate and a highly inflammable and damnable combustible building.

There is no question about it, for a period of 150 years fire insurance based upon the principle of many contributors paying for a single loss, so divide that loss into such small fractions as to make the burden of loss by fire reach a minimum point to the man who is insured by reason of the payments of the fellow-insurers, and this has been established as a very sound business principle. And up to 50 years ago it was practiced as a sound, conservative, sensible and profitable business.

Of more recent years they have played it like keno, faro or poker. It is known to be one of the business games of the present day. The insurance people consider the premium paid as the bookmaker sells pools on the races—a man pays his premium and takes a ticket. The insurance man bets him that his factory won't burn down, and if it does he don't intend to pay him more than he can help. It is no use attempting the evasion of facts—such is the condition of insurance as she really is, and if the manufacturers who read these lines will just go to their respective vaults, take out their policies and read the fine print through carefully, although it may involve the purchase of a microscope so as to decipher the fine print, he will be pretty sure to find a place in that policy which, being interpreted into plain old-fashioned English, would look like this: "In case of a real fire nothing said in this policy goes."

If you would attempt to conduct your business based upon contracts similar to the contract of an insurance policy, you would never find a customer. The only reason you take out the policy is because a solicitor, showing you the credentials of the high standing of his company, with its enormous assets, with its tremendous reserve and with the report of the enormous volume of business, has convinced you that everything about the transaction must be all right because it has been so rigidly inspected by the law and so liberally patronized by very able and successful men. You take in the bait, and if you are not careful you are bitten every time and the company will, in case of fire, probably offer you just about as much money as the premium you have paid to them, with interest for the time that they have held the money, so if you don't get a fire they keep the money. If you do get a fire, they give you your money back, which is kind, indeed, of them under the circumstances.

The first trip of the Chicago & New Orleans Transportation Company, using the Illinois and Michigan canal and the Illinois and Mississippi rivers as a freight line, has just gone into operation. Edward White, president and manager of the company, has opened offices in the Otis building in Chicago and states that the company begins business with their boats blocked off with more tonnage offered than they can possibly handle with the equipment at their command.

CEMENT

ASSOCIATION OF AMERICAN PORTLAND CEMENT MANUFACTURERS.

(Meets Semi-Annually.)

Officers.

President—John B. Lober.
Vice-President—Robert S. Sinclair.
Treasurer—W. H. Harding.
Assistant Treasurer—W. D. Lober.
Secretary—Percy H. Wilson.
Assistant Secretary—Lewis R. Ferguson.

Executive Committee.

A. H. Craney, Jr., T. Henry Dumary, Edward M. Hagar, Richard Hardy, R. W. Kelley, R. W. Lesley, D. McCool, W. S. Mallory, John A. Miller, John R. Morron, L. T. Sunderland, Frank E. Tyler.

CONTRADICTORY FIGURES IN TESTS BY THE AUTOCLAVE METHOD.

Discussion of H. J. Force's Paper by L. R. Ferguson
Before the American Society for Testing
Materials, June 24-28.

I desire to draw further attention to the significance of certain of the figures given in the paper by Mr. Force.

First, the question of the amount of expansion which a cement shows in the autoclave will be taken up. I have understood that Mr. Force claimed that the cement showing the least expansion in the autoclave would show ultimately the greatest strength. Judging from the tests shown in Mr. Force's paper, this conclusion is unwarranted. Of the samples of cement from Mill 1, the ones which showed a decrease in tensile strength before the three months and the six months periods have less expansion in the autoclave than the cements which showed an increase between these periods.

In the tests from Mill 2, the sample which gave next to the greatest strength at six months had an expansion in the autoclave of 1.5 per cent, and the sample having the least expansion, 0.10 per cent, has the least strength at the age of six months.

In the tests from Mill 3, of the two tests given at the six months period the one having the greater expansion has the greater strength.

In the tests from Mill 4, the cement showing next to the greatest decrease in the autoclave gives the greatest strength at the age of six months.

In the tests from Mill 5, the cement which gave a tensile strength of 450 pounds at six months, slightly higher than the average, showed an expansion of 4.83 per cent—the greatest expansion shown for cements covered by the six months' period.

I understand also that Mr. Force claimed that in certain cements there exist coarser granules which do not become hydrated when the cement is set up. These coarser granules are supposed to cause a lack of constancy of volume in the mortar or concrete when they do hydrate. The autoclave is supposed to detect the presence of these coarser granules. If such is the case, it would be supposed that cements which show a decrease in strength in the autoclave would show a decrease in strength between certain periods and that a cement which showed increased strength in the autoclave would show a steady increase in strength with age. Taking Mr. Force's figures from the various mills he has tested, we find that this is not the case. As a matter of fact, the average of the cements which gave an increase in the autoclave invariably show a retrogression in strength between the age of three and of six months, while the average of the cements which gave a decreased strength in the autoclave show a steady increase, as far as the tests have been carried, with practically no retrogression.

Many other cement experts present discussed the autoclave test, including Prof. Carpenter, of Cornell University; R. J. Wig, of the United States Bureau of Standards, and several others, with the conclusion that the report of Dr. Cushman on the subject of the autoclave test was well sustained in considering

the autoclave test as unimportant for the use of Portland cement manufacturers or of the users of Portland cement, for the reason that the autoclave has little or no bearing upon the hydraulic bonds of cement, but does develop the sand and lime bond, which is a different matter. From Dr. Cushman's report the history of the autoclave test is about as follows, being well understood and described by many of those who took part in the proceedings of the meeting:

"As far as we have been able to determine, the high-pressure steam test on Portland cement was first recommended in Germany by Dr. Erdmenger in 1881. The Erdmenger test was fully investigated by some of the leading German authorities on cements and was rejected by them as inadequate and misleading. This is clearly shown in letters addressed to the secretary of the Association of American Portland Cement Manufacturers. In commenting on the test, Dr. Dyckerhoff states as follows:

"As early as 1881 Dr. Erdmenger recommended in Germany a high-pressure steam test of Portland cement with a view to testing its constancy of volume. This was rejected by the commission of volume constancy in the Royal Bureau of Material Testing (Königliche Materialprüfung samt), their opinion being based on the fact that such a test had no bearing upon the problems of building construction. At the present time in Germany we consider the high pressure steam test as being wrong and misleading.

"Professor Gary, of the Royal Bureau of Material Testing, writes follows: 'Permit me to inform you that the high-pressure steam test was first recommended by Dr. Erdmenger in our country, but was never put to practical use on a large scale because it was soon discovered that this test was even less adapted to distinguish useless cements from useful cements than the usual methods of determining constancy of volume.'

"A careful study of all the available data in connection with the historical development of the high-pressure steam test, as reported in the transactions of the International Association for Testing Materials, shows very clearly that as a quantitative acceleration test the use of high-pressure steam has been generally condemned by leading authorities because it has been found to lead to erratic and inconsistent results.

"It is a very well known fact that if lime and silica in certain proportions are ground together in a slightly damp condition, molded into briquettes and subjected to the action of high-pressure steam a very strong bond is formed. The reactions induced by the action of the high-pressure steam are the basis of the sand-lime brick industry. Now, a mixture of lime and silica merely ground together in a damp condition would have no hydraulic properties

whatsoever, and would never set or develop strength under the conditions which govern the setting and hardening of Portland cements. The sand-lime brick bond has nothing whatsoever to do with a hydraulic bond, and the reactions which account for it are induced entirely under the action of high-pressure steam carried on for a few hours. Unquestionably Portland cement, after being mixed with water, formed into briquettes and allowed to form the first hydraulic bonds, contains both hydrated lime and, to some extent, reactive silica. It would, therefore, be expected that on subsequently subjecting it to the action of high-pressure steam, the sand-lime or silica-lime bond would be formed, which might or might not reinforce the natural hydraulic bond already formed.

"An excellent and comprehensive research on the bond formed between lime and silica under the action of high-pressure steam is to be found in a paper published by Mr. S. V. Peppel, entitled 'The Manufacture of Artificial Sandstone or Sand-Lime Brick.'

"In his excellent paper, Peppel has shown that the strength of the bond formed in the autoclave depends on a number of factors, in which may be included the reactive condition of the lime and silica present. A careful study of this paper and the application of the principles which it develops to the subject under consideration indicates that the action of the autoclave test is merely to produce, in addition to the ordinary hydraulic bond, a silica-lime bond which can only be produced under the action of high-pressure steam. If this is true, it at once becomes apparent that the autoclave test is not a rational one and should not be used as a method of judging the behavior in construction work of a given brand of Portland cement.

"The conclusion which must be reached as the result of these investigations is that the test is not dependable as a method of distinguishing cement which will give successful results from the cement which may be expected to fail under service conditions."

PORTLAND CEMENT. Production and Shipments.

The total production of Portland cement in the United States in 1912, as reported to the United States Geological Survey, was 82,438,096 barrels, valued at \$67,016,928; the production for 1911 was 78,528,637 barrels, valued at \$66,248,817. The output for 1912 represents an increase in quantity of 3,909,459 barrels, or nearly 4.98 per cent, and an increase in value of \$768,111, or 1.13 per cent. The value assigned to the production is proportional to the value of the Portland cement shipped in 1912. The shipments of Portland cement from the mills

Production of Portland cement in the United States in 1911 and 1912, by States.

1911				1912			
State.	Producing plants.	Quantity (barrels).	Value.	State.	Producing plants.	Quantity (barrels).	Value.
Pennsylvania.....	25	26,864,679	\$19,258,253	Pennsylvania.....	23	26,441,338	
Indiana.....	5	7,407,830	5,937,241	Indiana.....	5	9,924,124	
California.....	8	6,317,701	8,737,150	California.....	8	5,974,299	
Kansas.....	12	4,871,903	3,725,108	New York.....	7	4,492,806	
Illinois.....	5	4,582,341	3,583,301	Missouri.....	5	4,355,741	
New Jersey.....	3	4,411,890	3,259,528	Illinois.....	5	4,299,357	
Missouri.....	4	4,114,859	3,349,312	New Jersey.....	3	4,246,803	
Michigan.....	11	3,686,716	3,024,676	Michigan.....	10	3,494,621	
New York.....	7	3,314,217	2,669,194	Iowa.....	3	3,228,192	
Iowa.....	3	1,952,500	1,881,253	Kansas.....	10	3,225,040	
Ohio.....	5	1,451,852	1,228,680	Ohio.....	5	1,433,344	
Washington.....	3	960,573	1,496,807	Washington.....	3	1,362,416	
Utah.....	3	662,849	827,523	Utah.....	3	868,312	
Texas.....	4	2,438,493	2,541,449	Texas.....	4	2,977,179	
Oklahoma.....	2			Oklahoma.....	2		
Tennessee.....	2			Tennessee.....	2		
West Virginia.....	1	1,981,341	1,590,438	West Virginia.....	1	2,348,886	
Kentucky.....	1			Kentucky.....	1		
Virginia.....	2	1,487,753	1,084,315	Virginia.....	1	1,737,739	
Maryland.....	2			Maryland.....	2		
Colorado.....	2	1,162,081	1,272,317	Colorado.....	2	1,035,764	
Montana.....	1			Montana.....	1		
Alabama.....	2			Alabama.....	2		
Georgia.....	2	858,969	782,272	Georgia.....	1	992,135	
Total.....	115	78,528,637	66,248,817	Total.....	109	82,438,096	

in the United States in 1912 were, according to reports received by the Survey, 85,012,556 barrels, valued at \$69,109,800, compared with 75,547,829 barrels, valued at \$63,762,638, shipped in 1911. The shipments, therefore, represent an increase in quantity of 9,464,727 barrels, or 12.52 per cent, and in value of \$5,347,162, or 8.38 per cent. The average price per barrel in 1912, according to these figures, was a trifle less than 81.3 cents, compared with 84.4 cents in 1911. This represents the value of cement in bulk at the mills, including the labor cost of packing, but not the value of the sacks or barrels. The average price per barrel for the country is about 13.9 cents higher than the average price received for Portland cement in the Lehigh district, where it was sold at the cheapest rate, and is near the average price received in the Iowa-Missouri district, but falls 54.5 cents below the average price received on the Pacific coast, where Portland cement brought the highest figure during the year.

The quantity of Portland cement produced, 82,438,096 barrels of 380 pounds, is equivalent to 13,985,034 long tons, and the value per long ton is \$4.79. Compared with the production of pig iron for 1912, which was 27,726,937 long tons, having a value of \$414,096,232, or \$13.93 per ton at the furnace, the Portland cement production approximates 47.04 per cent of the quantity of pig iron and 16.18 per cent of its value.

The average price of Portland cement in the United States has been increased slightly over the average for ordinary gray cement by the inclusion in the totals of 163,803 barrels of white Portland cement, valued at \$2.29 a barrel. The greater part of this white cement—157,777 barrels—was produced in the Lehigh district, so that the value of that district has been increased in greater proportion than that of the other districts. Mills that produced white Portland cement as part of their product in 1912 were distributed as follows: Two in California, one in Colorado, one in Indiana, and two in Pennsylvania, besides one mill in Pennsylvania which produced white cement exclusively.

Production by States.

In the following table the Portland cement production for 1911 and 1912 is given by States, or by groups of States where there are less than three producers in a single State. By the term "producer" is meant a Portland cement manufacturing company, whether the company operates one or more plants. In the table the term "producing plant" is applied to a mill or group of mills located at one place and operated by one company, but each establishment at a different place is counted as a plant. The value of the marketed production or shipments for 1912 will be found on the following page.

MODERN CONVEYING METHODS IN A LARGE CEMENT MILL.

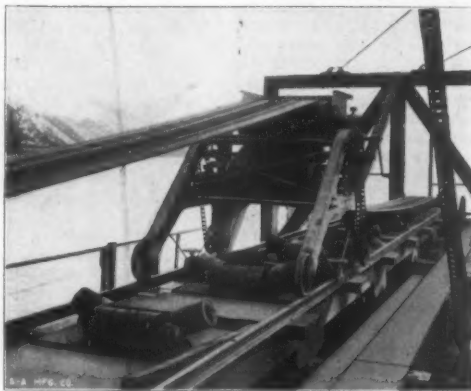
In the design of the new plant of the International Portland Cement Company, near Spokane, Wash., the engineers met some unusually difficult problems in the handling of the various materials. These problems were especially perplexing at the crushing plant which was located on a steep hillside at the edge of a lake, across which the crushed stone had to be transported. Some of the ingenious solutions of the problems met are illustrated herewith, showing the conveyors as installed both at the crushing plant and at the cement mill.

The mill is located at Irvin Station, nine miles from Spokane, and the raw materials are hauled by rail from Lake Pend Oreille, Idaho, fifty miles from the mill where the crushing plant is located. The raw materials consist of limestone and shale, both quarried beside this lake.

The quarry is worked in the usual manner and the rock is brought in to the crushing plant by means of a cable tram. The plant is located on the side of a steep hill, sloping directly to the lake, which arrangement allows the crushers to secure a firm foundation near the top of the plant. Rock is delivered from the cars to No. 8 crushers, thence to No. 6 crushers, which discharge onto 24-inch "S-A" Belt Conveyors leading to the storage bins. The conveyor handling limestone is 65 feet between centers and is equipped with an automatic tripper for distributing to the bins. The shale conveyor is 45 feet centers and discharges over the head pulley. The total capacity of the bins is 3,000 tons.

Beneath the bins are three horizontal 30-inch "S-A" Belt Conveyors, 45 feet centers, each delivering to a loading conveyor located on a boom extending out over the lake at an angle of 20 degrees. The north and south boom conveyors are each 70 feet between centers and the middle conveyor is 65 feet. Each conveyor discharges into a long flexible spout by which means each conveyor loads two cars with but one setting.

The cars receiving from the boom conveyors are carried on transfer barges, each having a capacity



CONVEYOR OVER SHALE BIN AT CRUSHING PLANT.

of six 50-ton cars. After the cars are loaded, they are towed across the lake, a distance of about six miles, where they are transferred to the railroad and then hauled to the plant. At the plant, the various materials are dumped from trestles into open storage providing sufficient capacity for a month's run.

Beneath the open storage piles are concrete tunnels in which are located the reloading belt conveyors. These conveyors receive their load through gates in the roofs of the tunnels, the stone being loaded through a traveling hopper and the shale through individual spouts. The tunnel conveyor beneath the limestone pile is 20 inches wide by 140 feet centers and delivers to the ball mills. The shale conveyor is of the same width, 275 feet between centers, and discharges to the hammer mills. From these preliminary grinding machines, the material passes to separate dryers and from thence it is elevated and conveyed to compartment storage tanks, of which there are eleven for each material. From these storage tanks, the material is drawn off in definite proportions into scale cars and thence over a 20-inch 50-foot "S-A" Belt Conveyor; it is distributed to the bins serving the Fuller Mills in the raw grinding department. From the Fuller Mills, the material is taken to the raw material bins above the kilns, where sufficient ground material is stored to supply the kilns for 24 hours.

The hot material drops directly from the kiln into rotary coolers, through which the air passes which is fed to the kiln, thus heating the air and cooling the clinker simultaneously as they travel through the cooler in opposite directions. As the clinker discharges from the coolers, it passes through weighing machines which record the kiln's operation onto a conveyor leading through a tunnel to the covered clinker storage. The arrangement of conveyors and elevators at this point is such that the clinker may be conveyed directly from the cooler either to storage or to the clinker-grinding department.

From the Fuller Mills here, the finely ground



A CLOSE VIEW OF ONE OF THE BOOM CONVEYORS.

cement is delivered over a bridge conveyor to the stock house. This is divided into 21 hoppers bins having a total capacity of 2,400 barrels. Located beneath these bins are tunnel conveyors which lead to the packing house to Bates Valve packing machines.

Another necessity for belt conveyors in this plant is for handling all of the coal which is used for burning in the kilns. The coal is brought to the plant in hopper cars and stored under a double track trestle. Beneath this storage, extending the entire length of the trestle, is a tunnel in which is located a 20-inch "S-A" Belt Conveyor, 215 feet between centers. The coal is drawn from storage as required onto this belt conveyor and conveyed to a set of crushing rolls which reduce the coal to 1 inch. The crushed coal is then automatically weighed, passed through a rotary dryer, and then to bins serving two 42-inch Fuller Mills, each driven by a 75-H. P. vertical motor. The crushed coal is then elevated to the cylindrical storage bins located in front of kilns, these being of sufficient capacity to allow the coal mill being run only during the day. The coal is fed from these bins into the kilns by means of motor driven blowers furnishing a blast pressure of seven ounces.

The power for both the mill and the crushing plant is purchased from one of the numerous hydro-electrical developments of that locality. It is delivered to the plants at 60,000 volts and stepped down to 440, 3 phase, 60 cycle.

One of the chief problems in the design of cement mills is the provision of adequate facilities for handling the material between various machines. The service is extremely severe and coupled with the necessity of continuous 24-hour operation the requirements are doubly severe. Belt conveyors are generally conceded to be best adapted for this service and the installation just described is typical. By means of the "S-A" Belt Conveyors, all handling and storage costs have not only been reduced to a minimum, but the continuous operation of the plant has been practically insured. The plant was designed by the Fuller Engineering Company, of Allentown, Pa., and the complete conveying equipment was furnished by the Stephens-Adamson Manufacturing Company, of Aurora, Ill. The capacity of the plant is 1,600 barrels per day and the location provides excellent facilities for reaching the markets of the Northwest.

The Monarch Portland Cement Co., of Humboldt, Kan., which has been in the hands of a receiver for the past two years, has been reorganized and will be operated under the name of Monarch Cement Co. The directors of the new company are W. A. Fair, Hutchinson, Kan.; W. E. Maritz, Tonkawa, Okla.; R. E. Smith, Kingman, Kan.; W. J. W. Kennedy, Fayetteville, Ark.; Miller Dobbin, Henry Entz, J. T. Giles, S. F. Helena, A. T. Rodgers, Robt. Tinfor and J. C. Pierson, of Wichita, Kan.

H. A. Turner and E. M. Durham, Birmingham, Ala., and C. N. Wiley, of Ragland, have been appointed to appraise the property of the Atlantic & Gulf Portland Cement Company by E. H. Dryer, referee in bankruptcy, this action being regarded as indicating the reorganization of the concern upon a sound financial basis. The trustees, W. S. Lovell, H. C. Stiles and J. H. McQ. Carter, have been operating the plant, which is earning about \$7,000 monthly, and it is believed that with the assistance of outside capital, the establishment will soon be in constant operation.

J. C. Burch, president of the Beaver Portland Cement Company, Portland, Ore., which was recently organized under his leadership and by means of his energy and enterprise, states that he has been living on the West Coast for about eighteen months and that when he left his former home in Wymore, Nebr., he only intended to spend a few months in rest and recreation along the Pacific Coast, but according to the insistent tendencies of his disposition, he got busy and organized the Portland cement company, which is about to begin the construction of a cement mill, and he says he now feels permanently located in his new home.

A large and important cement manufacturing plant is being built at Asotin, Wash., by the Idaho Portland Cement Works, Ltd., it being planned to expend about \$700,000 in the mill and equipment. The buildings will be constructed of reinforced concrete and the plant will have a capacity of 75,000 barrels. The Inland Engineering & Construction Company, of Asotin, is erecting the plant for the Idaho cement company. White and gray cement will be manufactured, the raw material being secured from Lime Point, about eighteen miles upstream from Asotin, on the Idaho side. An up-to-date quarry equipment will be installed at the latter point and the material floated down stream to the cement plant.

"BERKELEY"
Hydrated
LIME



ASK YOUR
DEALER



"SECURITY"
PORTLAND
CEMENT

Security Cement & Lime Co.
Main Offices, Hagerstown, Md.

"AA" Means
"The Best That Can Be Made"

The reason that "CHICAGO AA" dealers continue to enjoy the largest share of the cement business in their respective territory, is due to the User who, during the past fifteen years, has had ample opportunity to acquaint himself with the superiority of this particular brand, and who uses it, in preference to all others.

Besides, we assist the dealer in marketing our product.

Write for full particulars
and prices today.

**Chicago Portland
Cement Co.**

30 No. La Salle St., Chicago



SALES OFFICE:
Liggett Bldg., St. Louis

THE
**Standard
Brands**

OF
Portland Cement
Lightest in Color
Highest Tensile Strength

ALWAYS UNIFORM

Always the same high quality. Prompt shipment guaranteed at all times and made possible, as each mill is located within switching limits of the two greatest railroad centers of the West. You are assured of your orders being promptly filled.



SALES OFFICE:
Long Bldg., Kansas City

MANUFACTURED BY

Union Sand & Material Co.

ST. LOUIS
Liggett Bldg.

KANSAS CITY
Long Bldg.

MEMPHIS
Tenn. Trust Bldg.

WETHRPRUFE

Open
Mouth

Bates
Valve



We make these bags in one-fifth barrel size cheap enough to use and strong

enough to carry seventy-six lbs. cement to destination. ASK FOR THEM.

WATERPROOF

An Extra Heavy, Extra Strong
WATERPROOF PAPER BAG
For Cement, Plaster, Lime, Etc.

West Jersey Bag Co

Camden, N. J.

Tell 'em you saw it in ROCK PRODUCTS

OTTAWA SILICA CO. Ottawa, Ill.

Washed-Steam Dried and Screened

White Sand

Unexcelled for { Facing Concrete Blocks
Ornamental Concrete Stone
White Plaster
Roofing
Exterior Plastering
Sawing Stone and Marble, etc.

Analysis 99.90%

Prices, Freight Rates and Samples on Application

Shipped in Paper Lined Box
Cars or in 175-lb. Bags

You can order less than a carload, in fact shipments as
small as five 175 lb. bags can be delivered economically.

LARGEST SHIPPERS OF WHITE SAND IN THE UNITED STATES

MEACHAM & WRIGHT COMPANY CEMENT CHICAGO



Saylor's Portland Cement

Oldest American Portland
Used by the United States Government since 1876

COPLAY CEMENT MANUFACTURING CO.

SALES OFFICES:

Fifth Avenue Building, 1106 Land Title Bldg.,
NEW YORK CITY PHILADELPHIA

ROBERT W. HUNT JNO. J. CONE JAS. C. HALLSTED D. W. McNAUGHER

ROBERT W. HUNT & CO., ENGINEERS
INSPECTION CEMENT & REINFORCING STEEL
CHEMICAL AND PHYSICAL TESTING

Chicago Montreal New York San Francisco Office and Laboratories Pittsburgh Toronto St. Louis Mexico City London Seattle

WHITEHALL
PORTLAND CEMENT

Whitehall Cement
Manufacturing Co.
1722 Land Title Bldg.
Philadelphia



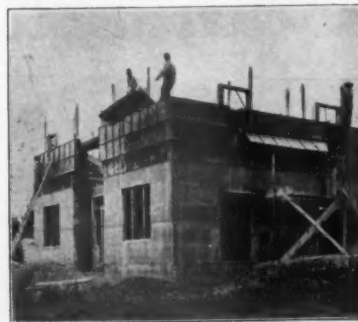
"Giant" Plaster Board

The HIGHEST GRADE
Plaster Board made. Substitute
for lath or wood sheathing. Im-
pervious to heat or cold. Fire
resisting. Vermin proof. Sound
deadening. Does not buckle.
Quick drying. Time saving.
Size of board, 32"x36".

The "Giant" Plaster Board Co.
Bridgeport, Conn.

STEEL FORMS

The Morrill System Solves the Problem



Pouring a House, the Famous Two-Tier Swing Up Process.

Reinforced concrete is the best and
cheapest building material known today.
The waste in wood forming has been the
principal cost. The "Morrill" Steel Forms
cut out this waste and material bills; can
be used over a hundred times, adjustable
to all dimensions, for walls, columns,
partitions and floors. All are of heavy
pressed steel, wedge connections auto-
matically coming to line, locked and un-
locked by the stroke of a hammer. Steel
forms are a permanent investment, cutting
out competition, better work, better finish,
more speed at less cost for permanent
structures. Fire-proof, damp-proof, paint-
proof and repair-proof.
A card today will bring catalogues of
steel forms, poured bungalows and houses.
They will interest you and pay you to
investigate.

Read & Morrill
Steel Moulds Co.

179 Joralemon St., Brooklyn, N. Y.

THE SUMMIT SILICA CO. BARBERTON, OHIO.

PRODUCTS: Steel Moulding Sand, Sand Blast Sand, Fire Sand, Core Sand, Concrete
Material.

SHIPPING FACILITIES: Pennsylvania Lines, New York Central Lines, Baltimore &
Ohio R. R., Erie R. R.

Our material is thoroughly washed and screened, insuring an absolutely uniform
quality. Kiln dried by the very best process known in the sand business. Finest
Equipped Mill and Best Material in the World.

PORTLAND CEMENT LIME PLASTER

RICHARD K. MEADE, Mem. Am. Soc. Mech. Engs.
Mem. Am. Inst. Chem. Engs.

Chemical, Mechanical and Industrial Engineer
202 N. Calvert Street, Baltimore, Md.

Plans and Specifications for Improvement of Old Plants or Construction of New.
Inspection, Tests and Analyses. Advice as to Improvement of Product or the
Economic Operation of Plants. Reports on Properties and Raw Materials.

Tell 'em you saw it in ROCK PRODUCTS

There are Big Opportunities in the Production of Washed and Graded Gravel

There is a strong demand in every locality for washed sand and gravel—there are hundreds of localities thruout the United States where it is impossible to secure clean gravel within 50 to 200 miles and where there are strong demands for the same.

How to Take Advantage of This Opportunity

If you have a gravel pit or know where you can get one; if the market is right; and if the railroad facilities and freight rates are good, you have the foundation of a paying business. Then, write us or call at one of our offices. We will go into the proposition thoroly, design a plant to meet your special conditions, and submit the specifications. This service is free and entails no obligation.

Our Experience

We have designed and erected upwards of 200 gravel washing plants—each one designed to meet special conditions—each one a money maker. With this fund of experience behind us, we can safely advise you on your proposition.

Stephens-Adamson Mfg. Co.

200 Ridgeway Avenue, Dept. F

Aurora, Illinois

New York, Chicago, Pittsburgh, St. Louis, Boston, Los Angeles, San Francisco

KEEP IN TOUCH WITH THE INDUSTRY THRU THE "LABOR SAVER".

We issue this publication every month describing our more interesting installations. It is yours for the asking if you send us your name and address and the name of your company. The plant illustrated below was described in "Labor Saver" No. 50. It is the plant of the Joliet Sand & Gravel Company which is the largest in the world. All types and sizes of profit making plants are described and illustrated in the "Labor Saver".



ATTENTION!

Cement Manufacturers, Lime Manufacturers, Quarrymen:

To increase your margin of profit you *must* cut the cost of handling *RAW MATERIAL*.

I have made a careful study of the problems involved in *EXCAVATING, CRUSHING* and *CONVEYING* cement rock and crushed stone on economical lines.

I have been able to show the manufacturers where the cost of installing a new plant for handling raw material would be paid within two years by the saving accomplished.

I solicit correspondence along these lines:

**Stone Crushing and Power Plants,
Sand and Gravel Plants,
Conveying and Storage Systems,
Investigation, Design and Erection.**

Reference by permission: Tomkins Cove Stone Co., New Jersey Trap Rock Co., Morris Co. Crushed Stone Co., West Shore Trap Rock Co., Syenite Trap Rock Co., Clinton Point Stone Co., Vulcanite Portland Cement Co., Consolidated Stone & Gravel Co. Capacity 500 to 5,000 tons per day.

Preston K. Yates, C. E., 30 Church Street, New York

Tell 'em you saw it in ROCK PRODUCTS

A SPECIAL BELT FOR ELEVATING AND CONVEYING CEMENT, SAND, GRAVEL, CRUSHED ROCK, ETC.

Rexall

Double Stitched


Belting



Are you interested in a belt which will not only give maximum service handling your product, but will also cause no trouble from bucket bolts pulling out, plies separating, or edge abrasion?

Write us for sample and convincing "Reasons Why" REXALL BELTING will fill this specification.

Imperial Belting Company, Chicago



PERMANENT and THOROUGH
Water-proofing of Cement Work
results from the use of

Maumee Compound

SPECIFICATIONS AND SAMPLES
ON REQUEST

The Maumee Chemical Co.
403 ST. CLAIR BUILDING
TOLEDO, O.

TRADE MARK.

F. L. SMITH & CO. 50 Church St. NEW YORK
SPECIALISTS IN
Engineering Cement Works
AND
Cement Making Machinery

THE FULLER ENGINEERING CO.
Designing, Constructing and Operating Engineers
ANALYTICAL CHEMISTS
Cement, Hydrated Lime and Gypsum Plants a Specialty
OFFICES: Allentown Natl. Bank Bldg. - - - ALLENTOWN, PA

This Little Book



Has attracted
the attention
of a host of
live gravel men.

Its contents are of
compelling
interest.

The demand for
copies has been
very great.

We have an
ample supply and
will be glad to
make generous
distribution to all
interested parties.

Ask for Catalog No. 38-R

The Webster Mfg. Company
TIFFIN, OHIO

CHICAGO
McCormick Bldg.

NEW YORK
88 - 90 Reade St.

Tell 'em you saw it in ROCK PRODUCTS

LOUISVILLE CEMENT NEWS.

Louisville, Ky., Aug. 19.—The Kosmos Portland Cement Company is keeping things moving, being busy shipping out cement on orders for work which has for the most part been under way for some time. Among these are the Lexington, Ky., viaduct, which has taken about 2,000 barrels of the 5,000 which will be required. The company is also shipping on the Gibson House job, at Cincinnati, Ohio, which is to be rebuilt as nearly fireproof as possible; and the plant of the Aluminum Company of America, at Maryville, Tenn., which will take about 5,000 barrels of their cement, is another job on which shipments will soon be made. A large paving job at Nashville, Tenn., is among the more recent contracts where Kosmos cement will be used.

C. M. Dugan, formerly general manager of the Kosmos Portland Cement Company, who resigned several months ago and took a western trip on business and for the benefit of his health, was recently in Louisville on a visit to Julius Bierach, of the St. Bernard Coal Mining Company, which has handled the fuel requirements of the big Kosmosdale plant for several years. Mr. Dugan is now in the East, but will probably be in Louisville on another visit shortly.

J. B. Speedy & Co. are handling a good lot of work, and are in no danger of having to shut down for want of some manner of disposing of their cement; and hence none but the best of motives can be inferred from a recent gift of the company to the Fresh Air Home, a charitable institution maintained entirely by subscriptions and gifts, for the purpose of giving women and children from the submerged tenth a chance at country aid and fare. The Speed company, like many other manufacturers and merchants in Louisville, contributed of its own goods, supplying free 300 pounds of cement needed at the home.

OLD MISSION COMPANY'S MODERN PLANT.

E. U. Leh, who is one of the old guard of the Portland cement industry and a veteran of the Lehigh valley in the early days, is now living on the Pacific Coast, but is still in the Portland cement game in the capacity of general manager of the Old Mission Portland Cement Co., at San Juan, Cal., which will go into bearing early next spring.

Mr. Leh favored ROCK PRODUCTS with a call recently and gave the following description of the construction and operation of the plant which is rapidly reaching completion at the present time:

"We are building a high-grade Portland cement mill, designed to produce 4,000 barrels of cement a day. The raw materials will consist of a very fine specimen of lime rock and clay, while fuel oil will be used for burning the clinker. Seven kilns eight feet in diameter and 125 feet long have been installed, together with two clay driers of Bonnot make; 14 Bonnot tube mills five and one-half by 22; two Allis-Chalmers Anaconda break chain rolls; one No. 8 Gates crusher; one Jumbo Williams pulverizer, and two 66-inch Griffin furnace grinding mills make up the reducing end of the mill.

"The equipment for handling raw materials consists of a 65-ton Marion steam shovel; a 20-ton American saddle tank locomotive; 14 20-ton air dumping steel cars, with railroad tracks running from San Juan to Chittenden, a distance of nine miles, connecting the plant with the Southern Pacific railroad. This little railroad is known as the California Central and will eventually be extended to Tidewater, giving the plant shipping facilities both rail and water.

"The plant itself is located half a mile beyond the city limits of San Juan. The plant is also being equipped to furnish crushed limestone for the sugar industry, crushed rock and sand for building purposes, as well as lime, for we have already a plant consisting of three modern lime kilns producing 300 barrels per day. As an addition to the lime plant, a hydrating mill will be added in the very near future.

"The cement mill will be in readiness for full operation by the first of March, 1914, beginning with the delivery of a contract to the state of California of 1,500,000 barrels of cement, which order has been booked for some time.

"The company owns its own property, the rock and clay for the cement material, as well as the lime and limestone, besides the oil wells which will supply both the cement and lime plants with fuel. The prospects of exporting cement from this plant are considered to be very fine, as it is located only 15 miles from Tidewater, in the central part of California, and naturally has a fine market in the valley of Santa Clara.

"The present contract with the state for its supply of cement provides for a number of public buildings and includes highways and harbor commission work in conjunction with the same. In this particular line the Old Mission Portland Cement Company has a contract for all the cement that the state will use for a period of years. The state features of the Panama Canal Exhibition will be a considerable consumer of the cement from this plant.

"The entire manufacturing capacity of cement in California at the present time is between 8,000,000 and 9,000,000 barrels per annum, all of which is being successfully marketed and still considerable quantities of European cement are imported."

Several years ago Mr. Leh was associated with the Cowell Portland Cement Co., of California, starting their plant to successful operation, and for the past few weeks he has been making an extended tour of his old camping grounds throughout the Lehigh valley and New York state. He says that he has found quite a considerable improvement in the manufacture of cement which has been accomplished in the last five years over the methods and practices that were used before he went to the Pacific Coast. Incidentally he reports cement conditions throughout the length and breadth of his eastern visit as being very good, with prices well maintained, and says that this condition is better now than it has been for years.

Returning to the discussion of the new plant at San Juan, Mr. Leh referred to his memoranda, stating that "the crusher building measures 50x140 feet, raw grinding building 130x132 feet, kiln building 123x152 feet, drying building 90x111 feet, cement warehouse 110x200 feet, machine shop 40x72 feet, blacksmith shop 24x40 feet, storeroom 40x75 feet, clinker storage 80x350 feet, laboratory 36x56 feet and office building 28x48 feet.

"The first shipments of the output of the Old Mission Portland Cement Company's plant has already started by the purchase of crushed rock by paper manufacturers in the vicinity of the plant."

The officers of the company are: J. C. Kemp van Ee, president; L. A. Hilborn, vice president; P. F. Unger, secretary, treasurer and purchasing agent, all of San Francisco, Cal., and E. U. Leh, general manager, San Juan, Cal. The capital stock is \$3,500,000.

A. C. Concorde, of the Universal Portland Cement Co., has been critically ill for a month with typhoid fever. He is, however, convalescing at the present time and expects to be back in the harness in a few days.

The Dixie Portland Cement Co., of Richard City, Tenn., two miles south of South Pittsburg, shipped 7,765 barrels of cement to a customer recently in one day, fifty cars of the N. C. & St. L. R. R. being required for the shipment.

Kansas cement companies are seeking lower rates to points like Kansas City, Leavenworth and Atchison, Kan. The Kansas cement companies ask for a 4-cent rate to Kansas City, 4½ cents to Leavenworth, and 5 cents to Atchison on carloads of 60,000 pounds, distances 106, 122 and 153 miles, respectively.

The Missouri "booster" bulletin of the bureau of labor statistics recently contained an article relative to the condition of the Portland cement industry in that state for 1912. It states that the five cement manufacturing plants of the state had an output in 1912 of 4,355,741 barrels. In quantity of cement sold during the year Missouri ranks fourth. In the plants of the state 2,304 men and women are employed.

Creditors of the Chanute Cement Company, Chanute, Kans., recently filed bankruptcy proceedings for that concern in the federal court at Fort Scott. The company, under the name of the Chanute Cement & Clay Products Company, was in bankruptcy a few years ago, but the affair was adjudicated at that time and the plant resumed operations. The company reorganized and is again forced into bankruptcy.

The Trus-Con Laboratories have just issued the third edition of their instructive manual, "Science and Practice Combined in Waterproofing." This book not only gives the theory of waterproofing, but it sets forth in detail the best practice, giving specifications for application of waterproofing, etc. The Trus-Con Laboratories, 1226 the Trus-Con building, Detroit, Mich., will be pleased to mail a copy to any interested person who will write on his letterhead for it.

Tucson, Ariz., July 19.—The demand for cement is constantly increasing in Arizona. Concrete is extensively used for the construction of buildings and in the large irrigation works. The factory of the Arizona Portland Cement Company which is situated near Phoenix is now producing 250 barrels of cement daily. The plant has a capacity of 500 barrels and at the rate at which the demand for the output is increasing it is expected it will be running to this full amount in a short time. This is the only cement factory in Arizona.

REGARDING CLOTH CEMENT SACKS.

The Universal Portland Cement Co. has made for some time past an aggressive educational campaign in the use of proper care in handling cement sacks and emphasized the economy of returning the same in good condition. The cement sacks cost money, and when the workman jabs a shovel through its sleek side somebody has got to pay for it, and the pernicious habit of viciously slitting its defenseless gullet with a jack-knife will not materially reduce the high cost of living. Indeed, it does not take long to pile up quite an item of expense when such tactics are resorted to, and realizing the need of effective educational material which cannot be overlooked by the consumer, the Universal Company is sending out to its customers, the dealers, who can tack it up in a prominent place, a placard 14 by 23 inches, a brilliant chrome yellow cardboard printed in red and black, a combination, although quite artistic, that cannot possibly be disregarded. Verily, the end justifies the means. The reading matter on the placard follows:

"We have to pay for cement sacks when we pay for the cement. They are not loaned or donated to us, therefore, we cannot loan or donate them to our customers."

"We will refund the money that our customers pay us for sacks if the sacks are returned promptly and in good condition."

"We cannot sell back to the cement companies any sacks that are not fit for further use. If a sack has been allowed to get wet—if it is badly torn—or if it has been soiled or worn by use in handling other materials than cement, the cement companies will not buy it back from us. Therefore, we cannot buy such sacks back from our customers."

"Cement is one of the few articles that are sold in packages with the privilege of returning the empty package for credit. The bottles, boxes, crates and tin cans that you buy are of little use to you after their contents have been used. Cement sacks are valuable because they may be sold back to us, if they are in good condition, but YOU must take care of them or stand the loss."

"Cement sacks are too valuable to be given away. The returnable cloth sack is an economical package, but it is not a FREE package, and no sack can be repurchased which, FROM ANY CAUSE is unfit for further use."

CEMENT WORK IN PALESTINE.

(Consul William Coffin, Jerusalem, Syria.)

Cement from Germany, France, Belgium and Austria is on the market here. It is imported in barrels of 220, 330 and 396 pounds, and prices range from \$8.50 to \$11.20 per metric ton (2,204.6 pounds) c. i. f. Jaffa. The largest sale is on a grade costing \$9.45 c. i. f. Jaffa. At Jerusalem the market for cement is limited, the principal use being for the lining of cisterns. In Jaffa the concrete industry is growing all the time and the market for cement there is improving. However, present freight rates may be prohibitive to the introduction of American cement into this market. Not long ago a commission agent here was quoted a freight rate of \$9.80 per ton on cement from New York to Jaffa.

(Vice Consul General F. Willoughby Smith, Beirut, Syria.)

The moment, notwithstanding the financial depression of the country, is particularly favorable for the introduction of American cement. Total imports of cement at Beirut were 3,330 tons in 1911. The last year witnessed the introduction of iron and concrete work in building. Heretofore nothing but large wooden beams have been used for ceiling support, the large beams being either left exposed or covered with a thin boarding. Of French Portland cement (in 110-pound sacks) has the largest sale in Syria, and is brought in steamers specially chartered to carry entire cargoes for discharge at Alexandria, Beirut, and other ports on this coast. This system has been found the most practical. A small amount of Belgian cement which is highly appreciated, and English cement are brought to this market. Dutch firms are now offering very satisfactory terms and facilities in order to introduce their cement.

RUSSIAN CEMENT SHORTAGE.

(From Our St. Petersburg Correspondent.)

St. Petersburg, July 25.—From the official organ of the Russian Minister of Finance it appears that the great quantities of cement used this year in the construction of reinforced concrete buildings in St. Petersburg and Moscow have created a noticeable shortage of cement, amounting virtually to a crisis. The price per barrel has, as a result, risen from three and one-half roubles to six and seven roubles (1 rouble—50 cents), while the end of this upward tendency still appears to be far off. It is known that Russian producers of cement, a short time ago, succeeded in forming a syndicate.

CONCRETE

NATIONAL ASSOCIATION OF CEMENT USERS.

(Meets Annually.)

Officers.

President—Richard L. Humphrey, Philadelphia, Pa.

Vice-President for two years—Arthur N. Talbot, Urbana, Ill.

Vice-President for one year—L. C. Wason, Boston, Mass.

Treasurer—H. C. Turner, New York, N. Y.

Secretary—Edw. E. Krauss, Philadelphia, Pa.

AMERICAN CONCRETE INSTITUTE.

National Association of Cement Users Adopts New Title.

Edward E. Krauss, secretary of the American Concrete Institute, has issued the following document under date of July, 1913:

To the Members:

Pursuant to instructions of the Kansas City and



SOUTH VIEW OF CONCRETE ROAD, LA SALLE, ILL., SHOWING APPROACH TO SHIPPINGSPOUT BRIDGE.

Pittsburgh conventions to effect a change of name of this organization, the board of directors desires to announce that the charter of the National Association of Cement Users, issued under the laws of the District of Columbia, was amended on July 2, 1913, so that the name of this association is now changed to American Concrete Institute.

The first annual convention of the American Concrete Institute, which is the tenth convention of this organization, will be held in Chicago, February 16-20, 1914, and promises to be one of the most successful and important in its history. Announcements will be made from time to time as to program and other features.

The Pittsburgh convention referred certain specifications to letter ballot which resulted as follows:

	For	Against	Not voting	Tot.
Proposed Standard Specifications for Portland Cement Stucco. (Standard No. 13).....	62	6	5	73
Proposed Standard Methods for the Measurement of Concrete Work. (Standard No. 16)....	69	1	3	73
Proposed Revised Standard Specifications for Plain Concrete Floors. (Standard No. 13)....	65	4	4	73
Proposed Revised Standard Specifications for Reinforced Concrete Floors. (Standard No. 14)...	63	6	4	73
Proposed Revised Standard Specifications for Portland Cement Sidewalks. (Standard No. 2)...	66	2	5	73
Proposed Revised Standard Specifications for Concrete Roads and Street Pavements. (Standard No. 5).....	61	7	5	73
Proposed Revised Standard Specifications for Portland Cement Curb and Gutter. (Standard No. 6).....	65	1	7	73

The president, Richard L. Humphrey, has been active in securing subscriptions to the \$6,000 fund and the proceedings will be issued during the summer to all members in good standing. No member can show his active support of the present organization better than by promptly remitting his dues.

Geo. Fishbough and J. N. Quick have formed a partnership under the name of Yuma Valley Concrete Construction Company, at Yuma, Ariz., and will make a specialty of concrete irrigation devices.

ILLINOIS DEDICATES PIONEER CONCRETE ROAD

When the first grey streaks of dawn stole across the horizon Thursday morning, August 21, the new La Salle-Oglesby concrete road across the bottoms to the Shippingsport bridge at La Salle, Ill., was automatically opened to traffic and a passage of history thereby written which will be permanent and everlasting. One mile of concrete road was completed. A stretch heretofore almost impassable because of its sunken, muddy condition was transformed as if by magic to a boulevard equal in quality to those linking the great park system of Chicago, and of sounder and more substantial construction because it is of concrete and is therefore permanent, standing as it does a symbol of the enterprise and industry of a people alert and awake to the advantages and the pressing necessity of good roads, and the wisdom of choosing the best type known to human intelligence at the present time.

Here is accomplishment, and here is ample cause for rejoicing and celebration, and the 6,000 citizens of the bustling little city of La Salle and its progressive neighbors were not reluctant in this regard. Through the efforts of Mayor Thos. F. Doyle, the La Salle Commercial Association, the business men and other enterprising citizens, supplemented by delegations from Peru, Spring Valley, Granville, Oglesby, Ottawa, Utica, Mendota, Morris, Wenona, Standard, Henry, Lacon, Seneca, Marseilles, Earlville, Chicago, Springfield, Peoria and Pontiac and close to two-score smaller towns, a mammoth gathering was held Thursday, August 21, to celebrate a good roads day under the slogan "Out of the Mud."

To the generosity of the Chicago Portland Cement Co., the Marquette Cement Mfg. Co., the Joliet Sand & Gravel Co., the Illinois Gravel Co., the American Sand & Gravel Co., the Rockford Sand & Gravel Co., the H. D. Conkey Sand & Gravel Co., and A. W. Lehrke, who contributed the cement and the sand and gravel which entered into the construction of the road, is due the thanks of the city of La Salle and the section which the road makes more accessible; and the road was brought to final completion by the united efforts of the Illinois highway commissioners, the highway commissioners of the town of La Salle and the city of La Salle. Hon. F. W. Mattheissen also aided by providing for a concrete rail fence to safeguard traffic on this road which will be constructed soon.

The day was set apart as a carnival day and a tempting barbecue was spread for more than 20,000 people, the menu consisting of beef and lamb, supplemented by pickles, corn and coffee, which were prepared for and greatly relished by the diners. Band concerts, fire runs, glee clubs, parades and many other amusement features, in addition to the good roads meeting, were attractions of the day.

The Chicago delegation, in which were included Norman D. Fraser, president of the Chicago Portland Cement Co.; Gold Williams, general sales manager, Marquette Cement Mfg. Co.; F. W. Renwick, president of the Joliet Sand & Gravel Co.; N. C. Fisher, president of the American Sand and Gravel Co.; J. R. Powers, representing sand and gravel interests and the National Association of Sand and Gravel Producers; Tim Charles, of Mitchell & Peterson Building Material Co.; F. D. Meacham; Samuel J. Cogan, representing

the T. L. Smith Co.; J. U. C. McDaniels, general sales manager, and J. J. Commons, publicity manager, of the Chicago Portland Cement Co.; W. H. Hurley, Universal Portland Cement Co.; A. D. Gash, chairman, S. E. Bradt and Jas. Wilson, of the state highway commission, and the Rock Products representative, was met at the train by the La Salle band and, under the auspices of the reception committee, of which F. W. Mattheissen was chairman, an automobile parade was given which carried the members through the principal business and residence streets of the city and over the newly finished concrete road to a point across the Illinois river, the termination of the road, one mile from the city of La Salle.

The La Salle Commercial Association, of which Geo. B. Blow is president and R. W. Thompson is executive secretary, were the hosts of the occasion. A luncheon was spread by the organization in the dining room of the B. P. O. E. lodge rooms, the bill of fare consisting of the edibles prepared at the monster barbecue, after which a silver loving cup was presented by E. C. Ferguson, representing the Association of Commerce of Chicago, as chairman of the committee on relations of Illinois commercial organizations. The cup was given to the Deer Park Club in appreciation of the hospitality extended to the Chicago organization last June, and bore the inscription "Tri-City Fellowship Cup." The relationship committee in attendance was composed of E. C. Ferguson, chairman; Geo. F. Zannis, W. A. Jones, M. B. Hilly and B. E. Gage.

At 2 o'clock the good roads meeting was held in



LA SALLE CONCRETE ROAD, SHOWING BAKER PLATES PLACED AT ANGLE OF 60 DEGREES.

Music Hall, Mayor Doyle making the opening address in his genial and hospitable manner. He heartily welcomed the visitors to the celebration and explained the manner in which Wm. Dickinson, of the Marquette Cement Mfg. Co., and Norman D. Fraser, of the Chicago Portland Cement Co., who have plants in the vicinity of La Salle, recognizing the advantages to the people of a concrete road through the "bottoms," generously agreed to furnish the cement necessary for the



LA SALLE CONCRETE ROAD—LOOKING NORTH.

building of the road, F. W. Renwick and others, representing sand and gravel operations, being quite willing to donate the product of their plants. Mayor Doyle then introduced Norman D. Fraser, president of the Chicago Portland Cement Co., who spoke as follows:

This happy, enthusiastic crowd demonstrates that there is an abundance of good nature in the world, and that the subject of road building in Illinois is a very live issue.

The new state aid road law makes it possible for us to have roads in Illinois that we need not be ashamed of, and in celebrating the opening of this new concrete road we should also remember that the La Salle county commissioners were the very first to make application for state aid under the new law. This speaks well for the progressive people of this county, and would indicate that our board of highway commissioners has the welfare of the community at heart. Both commissioners and the county have received much favorable publicity as a result of the action of the board in making the first application.

I believe we have passed the point when any of us are opposed to better roads. I feel that we are entering an era of road building here in Illinois. Thanks to the legislature in giving us a good road law, that will place old Illinois in the front rank of states that have real roads. I feel that no one here this afternoon believes good roads are a poor investment, but many of us have not taken the trouble to go into the matter with such thoroughness that we can prove by figures that one kind of good road is better than certain others.

In deciding the kind of road to build we are apt to forget that a road is not, or at least should not be, a temporary affair. We are living too much in the present and are not looking far enough into the future. The way to figure the cost of road building is to cover a period of ten, fifteen, twenty, or even fifty years, and by figuring both first cost and future upkeep decide, as you would in the purchase of a farm machine, whether or not one kind or another would prove the more economical in the long run. One of the chief objections to our former road building has been that the greater portion of our road money was spent for repairs, leaving little or nothing for constructing new roads.

Could we have foreseen twenty years ago what bad roads have cost us up to the present time I feel sure that we would have better roads today. If we could have realized twenty years ago that it cost us from 20 to 30 cents to haul a ton over a mile of ordinary road almost anywhere in Illinois the road law that was passed through our legislature this spring might have been placed on the statute books many years ago.

Possibly we have been too much absorbed in improving our farms and in keeping up to date on corn binders and the latest thing in automobiles to fully realize what bad roads have been costing us; or maybe we have thought we were economizing on taxes in not building roads, but if such has been the case we have, to use a homely saying, been saving at the spigot and wasting at the bung hole.

It is an absolute fact, borne out by the figures of competent authorities, that our loss due to bad roads for the last 20 years has equaled an amount that would have paid for hard roads entirely throughout the state. To be brought to realize this is a bitter pill to take, and I hope that each of you will go home this evening, sharpen your pencil and figure out what bad roads are costing you. Figure that it costs you from 20 to 30 cents per ton per mile to haul on ordinary roads, and approximately 8 to 12 cents per ton per mile on hard roads; take into consideration that with hard roads your road money may be used to build more miles of good roads rather than for repairs on bad roads, and I think you'll be as enthusiastic over the proposition as I am.

This eternal paying out of road money to fix the kind of roads so much in evidence in Illinois at present is like pouring water into a rat hole. It is simply a case of throwing good money after bad, and the sooner we realize it the better it will be for us and our posterity.

We must not lose sight of the fact that today things are not done as they were a few years ago. We are living in an age that has to its credit more real advancement than any since the beginning of time. The issues of yesterday are the dead ones today. The man who believes dirt roads are good enough today because they were in use fifty years ago should wear knee breeches and a queue because his grandfather did.

Modern business demands up-to-date methods, and surely a system of roads that costs us so much for haulage and requires so much of our time is anything but an economical proposition.

It is going to cost us money—a great deal of it—to build twentieth century roads, but results will justify the expenditure. Why not build good roads at once and get it over with? Whether we vote bonds to raise the money or get it by direct taxation matters little. It will be cheaper for us to build roads today and profit by the saving in time, labor and money than to practice our old-time false economy, to go plodding through the mud as we have done in the past and spend every cent of our road appropriation for temporary repairs and improvements on roads which even when repaired are not the best.

If we hesitate to take the initiative; if we are afraid to act upon our own judgment; if we are in doubt as to the advisability of building better roads as a business proposition; if we doubt the economy of such a move, we have only to look about us to the East, the West, the North or the South, in dozens of other states, to learn that up-to-date road building has proved to be the best investment the inhabitants of these states have ever made.

I know that money spent for hard roads is a good investment, and doubt not that the greater number of you here today hold the same opinion; yet, we should also take into consideration certain other features in connection with this subject. Let us lose sight of the almighty dollar for a while, and consider that a good road is, aside from Christianity, the greatest civilizer the world has ever known. A good road aids the social and religious advancement of the people.

The modern man requires intercourse with his fellow beings. To be denied the privilege of school, church, or entertainment, is to retard advancement. To be able to travel at any and all times of the year, to be independent of conditions under foot or over head, is something much to be desired. Give us good

roads and a freer commingling of the people and we will be less at the mercy of political demagogues—we will have a better chance to learn what is going on in the world, to attend our religious and educational institutions, and in every way to improve our mental, moral and financial conditions.

I could talk to you all afternoon on this subject, and not cover the ground, but I hope and trust that the road, the opening of which we are celebrating today, will prove to be only the beginning of a system that will connect every city, town and hamlet in the state.

We have a law that will help us build roads; we have a state organization that could not be improved upon; our county commissioners are thoroughly alive, and I hope you will live up to that excellent motto of the Illinois Good Roads Association, "Pull Illinois out of the Mud."

F. W. Renwick was next presented and spoke of his great enthusiasm in the good roads movement, believing that the concrete road is "the road of all roads," and saying that he felt amply repaid for his contribution of sand and gravel when he witnessed the great advantages to the people this road



NORMAN D. FRASER, CHICAGO PORTLAND CEMENT COMPANY.

would be. Mr. Renwick stated that he would much rather see good roads built throughout the nation than libraries established, and praised the people of La Salle county for their foresight in building a road of this type. Mr. Renwick believed that the concrete road is going to be universal from now on and stated that it was his own personal opinion a concrete road would be built connecting the cities of Chicago and La Salle in the not-too-distant future.

Many other prominent speakers were on hand, among them being A. N. Johnson, engineer of the state highway commission, and under whose supervision the road was built; E. C. Ferguson, representing the Association of Commerce, Chicago; N. C. Fisher, president of the American Sand & Gravel Co.; A. D.

Gash, chairman of the Illinois state highway commission; M. A. Bronson, chairman of the board of supervisors of La Salle county, and Lieutenant-Governor Barratt O'Hara, who spoke of the advantages to civilization of the type of road which had been constructed at La Salle.

The plans call for a concrete roadway 20 feet wide and approximately one mile long, one course, 7 inches thick. Mixture 1:2:3½, of cement, sand and gravel. The amount of material required is approximately as follows:

Washed gravel	1,884 cu. yds.
Sand	1,070 cu. yds.
Portland cement	3,814 barrels.

* * * *

Twenty-two hundred thousand dollars will be spent for permanent road construction in Illinois within the next two years. The counties are ready to meet the state half way and stand half the expense. Requests for state aid are flooding the office of the highway commission.

Under the Tice act, recently passed, the state pays half the expense of construction of so-called "state aid roads," in which the plans are approved by the state highway commission and the roads are built under the supervision of the department.

TO HOLD CONFERENCE ON CONCRETE ROAD BUILDING.

At the annual meeting of the Cement Products Exhibition Company, held May 13, a resolution was adopted authorizing and directing the executive committee to call a National Conference on Concrete Road Building to be held in Chicago, February 12, 13, 14, 1914.

In pursuance of this resolution the preliminary organization of the proposed conference has been made. Dr. Wm. Freeman Myrick Goss has been appointed temporary chairman. Dr. Goss is dean of the college of engineering of the University of Illinois, director of the United States engineering experiment station at Champaign, Ill., and is president of the American Society of Mechanical Engineers. An advisory board has been named consisting of a number of state highway commissioners, state engineers and others representing various interests largely concerned in the improvement of public highways. The program for the conference is now in preparation.

It is intended that invitations to participate in the conference shall be issued to all public highway officials in the United States, including county and township officers, and to state engineers, members of park boards, officials of good roads committees and automobile clubs, good roads organizations, railway officials, agricultural societies, technical schools and technical societies. Present indications justify the prophecy that the gathering will serve a useful and important purpose. It is hoped that one of the results will be the fostering of public sentiment in favor of permanent road improvements.



BOTTOM ROAD, LA SALLE, ILL., BEFORE CONCRETING.

FARM IMPROVEMENT CONFERENCE.

Representatives of Farmers' Institute and Short Course Workers Assemble Under Auspices of Universal Portland Cement Company.

"Permanent and Sanitary Farm Improvements," was the subject of the conference of the Farmers' Institute and Short Course Workers, which was held at the Hotel Sherman, Chicago, August 18 to 23. At the invitation of the Universal Portland Cement Co., who bore all expenses of the conference, including hotel bills and railroad fare, one hundred representative men of the middle Western and Eastern states gathered together to better acquaint themselves with the advantages of concrete for farm work.

The Farmers' Institute is an organization in each state composed of the farmers of the state. The object of the institute is for mutual betterment of farm conditions, etc., and a governing board in each state arranges for lectures to be delivered at various times to the farmers of the several states. Members of the various state institutes, numbering also some of the lecturers and practical farmers, were included in the representation of men from about eighteen states who gathered at the invitation of the Universal company at the conference in Chicago.

The program opened Monday, August 18, with a get-together luncheon at the Hotel Sherman, with C. W. Boynton, of the Universal company, presiding.

Edward E. Gore, vice president of the Chicago Association of Commerce, delivered the address of welcome in behalf of the citizens of Chicago, and Hon. A. N. Abbott, president of the Illinois Farmers' Institute, replied for the farmers of Illinois.

Monday afternoon the party went to the Lewis Institute, Chicago, where a number of interesting lectures were delivered in the afternoon and evening, different men on the Universal company's staff leading the various discussions.

The following subjects were discussed: "Screening and Proportioning of Concrete Aggregates;" "Presence of Dirt in Concrete Aggregates: Comparison of Clean and Dirty Aggregates;" "Effect of Consistency upon the Strength and Density of Cement Products. Methods of Securing Water-Tight Concrete;" "Tools for Concreting. Home-Made Tools for Farm Use;" "Silos and Dairy Barns;" "The Theory of Reinforcing. Loading Test on Concrete Beams Reinforced and Not Reinforced;" "Concrete Blocks;" "Demonstration of Cement Drain Tile Manufacture," and "Concrete Fence Posts."

The last two subjects were assisted in their demonstration by the presence of manufacturers of the equipment for making the respective products. The W. E. Dunn Manufacturing Co., of Chicago, exhibited their cement drain tile machine, and the D. & A. Post Mold Co., of Three Rivers, Mich., exhibited their molds for fence posts.

Tuesday, August 19, included a trip to Aracady farm, Arthur Meeker, owner, Lake Forest, Ill.; the Hawthorne farm, Samuel Insull, owner, and also some farms in the vicinity of Barrington, Ill. In the evening the party returned to the hotel, where a round table discussion of workers' supplementary material, lantern slides, chats, etc., was held.

Wednesday and Thursday were also given over to the practical demonstration of farm improvements on farms at Wayne, Gilberts, Pingree Grove, Hampshire, Geneva and Batavia, Ill.

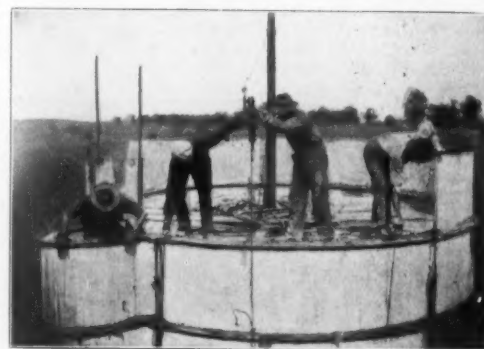
In the evenings the subjects discussed were as follows: "Feeding Floors and Pavements;" "Tanks and Troughs;" "Manure Pits;" "Farm Sanitary Systems;" "Farm Building Economics;" "Farm Building Construction," and "Silos."

On Friday, August 22, the party was shown through the Union Stock Yards and in the afternoon took the train to Buffington for the inspection of Plant No. 6, of the Universal Portland Cement Company. The trip proved highly interesting to many of the delegates.

On Friday evening a banquet was held at the Hotel Sherman, where many interesting speeches were delivered. The guests were entertained later by the singing of the Universal quartette.

The meetings and discussions were all very informal, everyone being privileged to speak at any time, and all questions were gladly answered. This method of conducting the conference was ideal, as it made everyone feel perfectly at home and also gave each one a better understanding of the subjects discussed.

The Universal Portland Cement Company deserve a great deal of credit for their admirable method of broadening the understanding of the use of cement for



MONOLITHIC SILO FORMS BEING PLACED.

many remarks were overheard concerning the great work the Universal company is doing and voicing their appreciation of the entertainment.

Notes of the Conference.

C. W. Boynton, engineer in charge of the Universal Portland Cement Company, was a very genial host, and his efforts assisted materially in making the conference the great success that it was.

The conference was honored by a visit from Richard L. Humphrey, president of the American Concrete Institute, and recognized as one of the greatest concrete experts in the world. Mr. Humphrey expressed to the representative of ROCK PRODUCTS his hearty approval of the work which the Universal company is doing in promoting a better understanding of the use of cement.

Representatives of many of the state universities were present at the conference, including Prof. E. J. White, of the University of Illinois; Prof. C. A. Ocock, of the University of Wisconsin, and other professors prominent in agriculture lines.

The inspection of the cement plant at Buffington filled one of the most interesting and instructive days of the conference.

ATTENDANCE.

Illinois.

A. N. Abbott, Morrison.
R. T. Abbott, Morrison.
F. N. Chase, Chicago.
J. H. Checkley, Champaign.
T. Delohery, Chicago, Drivers' Journal.
I. W. Dickinson, Champaign.
C. V. Gregory, Chicago, Prairie Farmer.
L. S. Griffith, McNabb.
Dr. H. E. Horton, Chicago.
James Kane, Chicago, Examiner.
J. H. Martin, Morrison.
J. C. Moore, Chicago, ROCK PRODUCTS.
C. C. Purvicer, Sheffield.
Prof. F. H. Rankin, Urbana.
Dr. Rider, Chicago.
W. E. Riegel, Galatia.
L. D. Seass, Arthur.
George W. Simon, Chicago.
W. H. Warford, Geneva.
C. E. Wells, Evanston, Evanston Index.
E. A. White, Urbana.
H. E. Young, Chicago, Farmers' Review.

Indiana.

W. B. Anderson, Velpen.
W. F. Franklin, Danville.
Oliver Kline, Huntington.
James Kline, Howe.
C. N. Lindley, Salem.
E. C. Martindale, Wilkinson.
Prof. Wm. F. Nye, LaFayette.
R. A. Ogg, Greencastle.
W. H. Sebour, Brookville.
Louis Taylor, Newburg.
R. L. Thompson, Topeka.
W. Walton, La Porte.

Maryland.

Dr. R. S. Hill, Upper Marlboro.
E. I. Oswald, Chewsville.

Michigan.

C. E. Bassett, Fennville.
C. H. Bramble, Tecumseh.
N. A. Clopp, Northville.
C. A. Cook, Owosso.
F. L. Dean, Sheridan.
A. L. Hopkins, Bear Lake.
Prof. H. H. Musselman, Lansing.
A. R. Potts, East Lansing.
J. H. Skinner, Grand Rapids.
L. R. Taft, East Lansing.
Grant Slocum, Detroit, The Gleaner.

Minnesota.

Forest Henry, Dover.
Prof. J. L. Mowry, St. Paul.
J. J. Springer, Zumbro Falls.

Nebraska.

Prof. L. W. Chase, Lincoln.

New York.

Leslie E. Hazen, Ithaca, N. Y.
J. A. Jasson, Lunda.
D. P. Witter, Berkshire.

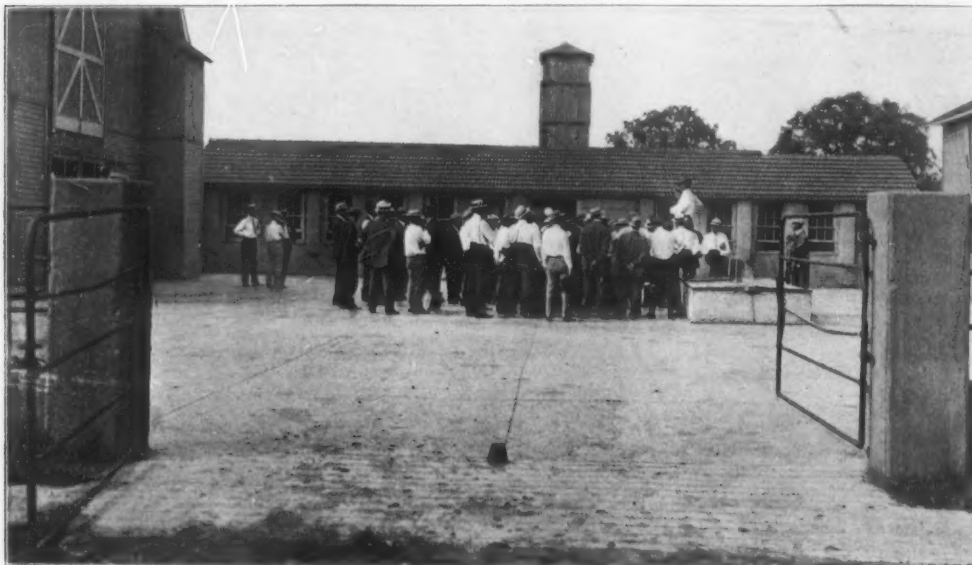
North Dakota.

C. F. Chase, Agricultural College, Fargo.
G. W. Randlath, Fargo.



C. W. BOYNTON, ENGINEER IN CHARGE, UNIVERSAL PORTLAND CEMENT CO., CHICAGO, ILL.

sanitary improvements. Everyone present seemed to realize, and rightfully so, that the Universal company has done and is doing a noble work among the farmers of the United States along the line of farm improvements, and also along the line of the furthering of the cement industry. The visitors to the conference were all enthusiastic over the meeting and



H. STILLSON HART, HARTWOOD FARMS, BARRINGTON, ILL., ADDRESSING DELEGATES.

Ohio.

John Begg, Columbus Grove.
E. A. Breneman, Camp Chase.
J. S. Brigham, Bowling Green.
J. L. Buchanan, Sherodsville.
H. Burkholder, Clyde.
S. W. Burlingame, Caldwell.
J. F. Gordon, Columbus.
D. D. Harsh, Minerva.
R. A. Hayne, Adena.
G. C. Housekeeper, Bowling Green.
J. F. Hudson, Ravenna.
J. A. Hummon, Lelapsic.
Geo. S. Lentz, St. Clairsville.
Horatio Markley, Mt. Gilead.
J. W. Nicodemus, Van Wert.
H. B. Potter, Springfield.
Geo. E. Scott, Mt. Pleasant.
Bert Smith, Delaware.
M. C. Thomas, Mingo.
C. R. Wagner, Arlington.
C. S. Wheeler, Columbus.

Pennsylvania.

J. T. Campbell, Hartstown.
Hon. N. B. Critchfield, Harrisburg.
F. D. Gardner, State College.
J. E. McClintock, Scranton.

South Dakota.

Prof. Christian Larsen, Brookings.

Wisconsin.

Ray H. Beebe, Ashland, editor Lake Superior Farmer.
A. J. Glover, Fort Atkinson, Hoard's Dairyman.
H. D. Griswold, West Salem.
E. C. Jacobs, Elk Mound.
Geo. McKerrrow, Madison.
Prof. C. A. Ocock, Madison.

A PERFECT, SANITARY MILKHOUSE.

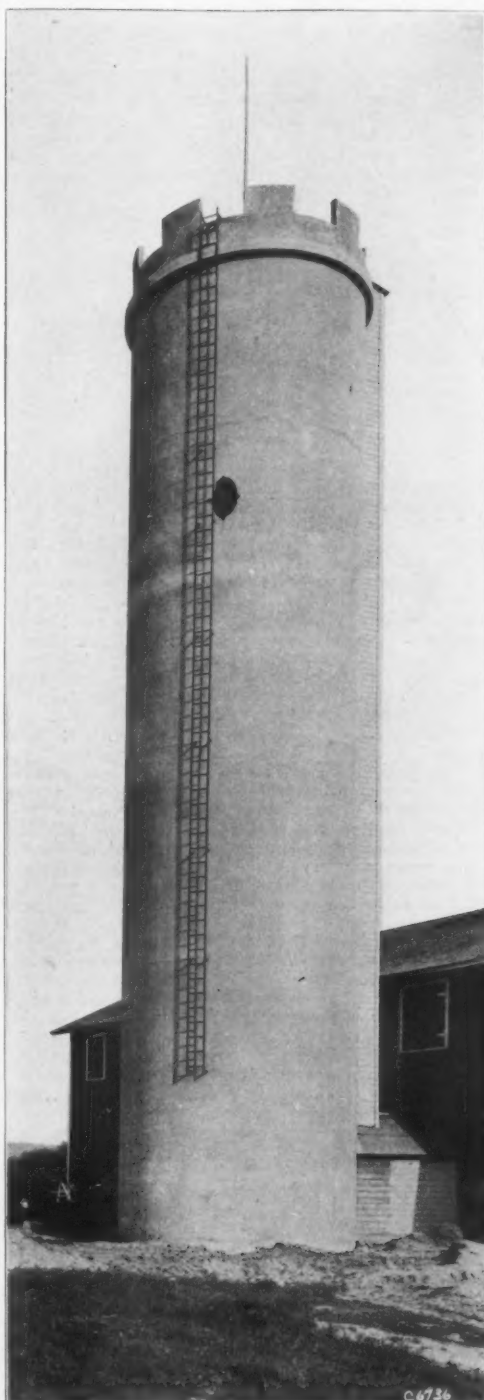
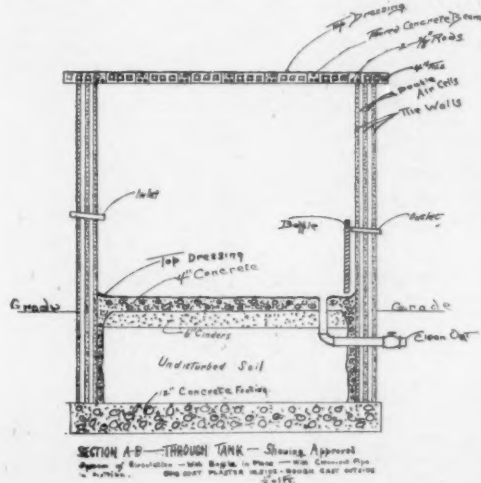
The recent changes in the milk inspection and the requirements by the Chicago Board of Health has brought about many improvements in the methods of handling milk on the farm before it is placed on the trains for shipment to the city. Formerly the milk was placed in cans for shipment without cooling. The board of health now requires that it be cooled immediately after the milking is done and before it is placed in the cans.

In order to meet these requirements the farmer must have some method, both efficient and inexpensive, by which he can lower the temperature of the milk in a comparatively short time. The engineering department of the Chicago Structural Tile Company has designed a cooling plant which more than meets the requirements of the board of health and has the endorsement of several of the largest dealers who operate in Chicago. Judging from the number already built and in course of erection this type of cooling plant is proving to be very popular and in all cases has given the utmost satisfaction.

These plants are merely small houses, eight by ten feet or larger, depending upon the local requirements. A cross wall is built in and runs up about three feet above the floor, making a tank along one side of the building. The milk is placed in cans in the tank, which is kept filled with water to a height above the milk in the cans. By having a plentiful supply of cold water the milk is rapidly cooled and ready for shipment to the city.

These cooling plants are built of concrete throughout, using poured concrete and the concrete hollow tile, manufactured by the Chicago Structural Tile Company. The sketches show cross sections of a milkhouse eight by ten feet in size, but larger ones can be built at a very slight increase in cost. The footing area of poured concrete should be at least four feet below the surface of the ground to insure against the action of frost. They are under the main walls and the cross wall which forms one side of the tank, and measure one foot by one foot in section, and eight feet by eight inches by ten feet by eight inches in plan, with the main walls set in two inches all around, or centered on the footing.

The walls are constructed of concrete hollow tile



SILO AT MOOSEHEART FARM, AURORA, ILL.
POLK-GENUNG-POLK FORMS USED.

and are laid directly on the footing. They should be three feet below grade, eight feet above grade in front and seven feet four inches above grade in the rear, giving the required pitch to the roof.

The cross wall is built in the same manner and at the same time as the main walls, and should be thoroughly banded at each end by turning alternate courses. The last course of tile laid in the cross wall is filled with concrete to prevent any breakage of the webs of the tile during the handling of the heavy milk cans.

The tile used for these walls have cells and measure eight by eight and sixteen inches. They are laid flat, with the cells horizontal, and with vertical cell tile at the corners. This gives two still air spaces in the walls and forms perfect insulation against variations in temperature.

The roof is of tile and beam construction. The tiles, which measure four by twelve by twelve inches, are laid in rows four inches apart, on a form placed inside the house.

The reinforcing is placed in the four-inch space between the tiles. The rods are made fast at the ends to a cross rod, which prevents spreading. The spaces between the rows of tile are then filled with a

rich mixture of concrete, making a series of beams twelve inches apart. The whole roof is then treated with a finish coat of cement, sand and water.

The floor, which also makes the bottom of the tank, is laid in the same manner as any cement floor is laid. The spaces between the walls and the undisturbed soil should be filled with concrete in preference to loose dirt. A layer of cinders from four to six inches in thickness should be placed on the undisturbed soil. The concrete is put on top of the cinders and well tamped in place, with a smooth finish on the surface. Four rails should be imbedded in the tank floor and should extend about two inches above the surface. This allows the water to circulate under the cans as well as around them.

The doors and windows are of any substantial wood and should be placed as the work progresses. The windows should be placed opposite one another, preferably in the ends of the building, with the door in the middle of the wall opposite the tank. The windows should be on hinges and open from the inside. The outside of the frames should be covered with muslin, which will admit the light but keep out insects, dust and dirt.

The interior walls should be given one smooth coat of cement plaster to fill all crevices, so that the whole interior can be scrubbed and cleaned easily. The exterior can be left unfinished or at a slight expense can be given one coat of stucco, which makes the finished house a thing of beauty.

A hooded ventilator is placed in the center of the roof and, as required by the board of health, should have 100 square inches in a section. This ventilator is placed in position at the same time the roof slab is cast.

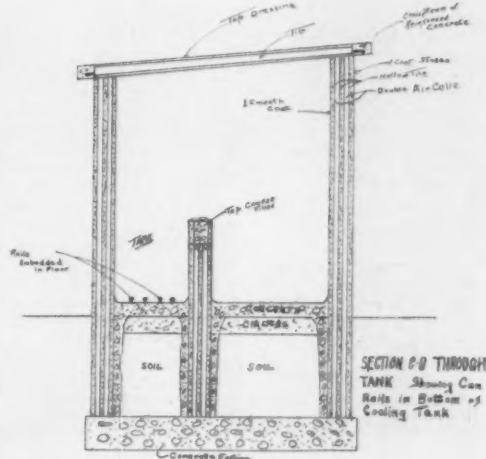
At one end of the tank the wall is pierced and the supply pipe is firmly fixed in place. This is connected with the pump or other water supply. The overflow pipe is placed in the opposite end of the tank and should be connected in such a manner as to carry the water way from the building. A wooden baffle is laced across the tank about two inches from the overflow pipe. This rests on the rails in the bottom of the tank and regulates the circulation of the water.

A clean-out pipe is imbedded in the floor and extends through the wall with a valve outside. This is used only when it is necessary to remove all the water from the tank. The floor of the tank can be placed at any level desired. Some already built have the tank at a lower level than the main floor, thus doing away with the lifting of the heavy cans over the wall.

This house completed is a permanent improvement to any farm and one that will never lessen in value or efficiency. When once completed it is there forever, as nothing about it can deteriorate. There can be no cost except the initial one, as there is nothing about it that will ever need repairs. It is a perfect cooling plant, and one of the size described above will cool sixteen cans at one time. Any person who is handy with tools and has a slight knowledge of the use of cement can easily put up one of the houses.

The Chicago Structural Tile Co. is shipping these cooling houses every day throughout the Chicago district and their own men are erecting them. The cost is not large and runs from \$125 up, according to local conditions and the desires of the owner.

One of the biggest undertakings in the sewer pipe line has been let on the Pacific Coast and will be built in the near future. The cement pipe line will be 27 miles long, of 40-inch concrete water pipe, which will convey pure mountain water from Sooke Lake to the city of Victoria. The cement work will amount to about \$350,000.



QUARRIES

WORKINGMEN'S LIABILITY RATES.

According to the government statistics for the year 1911, 3,603 men were killed in quarry and mine accidents in the reported operations throughout the United States; 63,301 were injured during the same time. The death rate chargeable to all quarry and mine operations for that year amounted to 3.58 men in every 1,000 employed. There was no distinct separation made in the statistics between the mining and quarrying proposition, but it is easy to calculate that fully 85 per cent of the death rate was represented by the coal mining accidents for the year 1911, which were notorious, one mine in the state of Illinois amounting to 107 men in one accident.

The death rate and personal injury record is the basis upon which the workingmen's compensation is figured in a given industry, and it is up to the quarrymen to keep their records of accidents in such a way that they can be all bunched and separated from the mining feature so as to get a lower rate for quarry compensation. For instance, coal mining and every other kind of tunneling operations represents a tremendous risk of life, possibly one of the highest grades, while the ordinary rock quarry operation represents one of the very lowest—for according to the personal observations of the writer and every other man in the country who is in the quarry business, the death toll and injury feature of quarry operations is about the lowest risk that the workingmen's compensation can consider. Somehow the men who work in quarries live to a green old age and the occasional accident that happens to overtaxed equipment is discussed amongst the quarry workers for a decade or even fifteen years after the accident, which goes to prove of itself the rarity of such occasions.

Workingmen's compensation acts have in recent years been passed in fifteen states, of which ten were enacted in the year 1911 alone. The rapid spread of legislature compelling employers to care for injured workmen clearly shows the importance to the employer of reducing the liability by every means at his disposal. These are of two kinds, namely, safety or preventive measures, and protective or rescue and first aid methods. Fifty-eight per cent of all industrial accidents have been shown by statistics to be due to negligence, carelessness or lack of knowledge of employees. The vital necessity of learning everything necessary about the causes and means of preventing accidents is evident to every man concerned, for this spells business success or failure to a very marked extent.

The movement in recent years in quarry operations to equip every part of these operations with automatic machinery so as to reduce the number of men employed has been a principal feature for accident prevention. We have all got to hand it to the machinery designers and builders for putting out a very reliable line of automatic devices for the handling of the quarry product; and while we look at the ever-present pressure of the insufficient labor supply, which has been another factor in forcing the equipment of the quarry into automatic devices now that most of the quarries are so equipped and the balance of them right in line for such equipment, we must appreciate the fact that it increases the tonnage of the plant with a fewer number of men and has been most forceful in reducing the causes of the accident feature.

The workingmen's compensation in industrial enterprises is at present in a very crude stage of development and of course it will be improved from time to time by experience and by observation, and the first step that confronts the quarry operator today is the rate that he has to pay. These are being based upon statistics taken for both mines and quarries, and the quarry operator is being taxed a rate which is probably two or three times greater than it should be or would be if complete quarry statistics were at hand upon which to base the quarry rate. The quarry rate, of course, would depend upon the definition or description of the quarry operator and might depend somewhat upon the extent of the opening, the depth of the face being worked and some other features applicable to the situation; but if all the quarry operators will get their statistics together in this matter and bring it up at the next association meeting, spending an hour or two in working up a basis for their own calculation, it is certain that they can put across a reasonable, just and equitable basis of liability insurance and it will be cheaper than the present crude and, for the most part, unjustly applied basis of calculations.

AMERICAN ROAD CONGRESS TO BE UNEXCELLED SCHOOL OF KNOWLEDGE.

Unlimited Opportunities Will Be Afforded for Studying Latest Road-Building Methods and Machinery.

A movement is on foot to make the American Road Congress an annual training school for road and street officials whereby they may increase their efficiency through attendance at lectures given by leading specialists, and by study of the government and commercial exhibits of materials and equipment. This year's session of the congress, which will be held at Detroit during the week of September 29, will bring together the greatest authorities in the land on every line of road and street work, and will be supplemented by a remarkable and instructive series of exhibits.

It is contended that a great deal of money can be saved to states, counties and municipalities by having the road and street officials attend the American Road Congress at the expense of the state and local governments. The reason of this is that the officials can there see and critically examine and compare every known labor-saving device and equipment for road and street work; closely examine every known road material in competition with all known road materials; study the government exhibits, which illustrate the exact methods of constructing every recognized type of road; obtain without cost practically a library of national, state and commercial publications, which will be available for distribution by the various exhibitors; hear addresses and discussion by men whose advice, if rated at its commercial value, would cost hundreds of dollars; become personally acquainted with the men who are actually directing the building, maintenance and administration of streets and highways and obtain the benefit of personal discussion with them. The supporters of this plan of official representation call attention to the fact that in many cases private corporations, and even states and cities, send representatives to various points in this and other countries to study a single device, method or material, and that nowhere could a greater amount of knowledge concerning the construction and maintenance of roads and streets be acquired in so short a space of time as at the Road Congress. The headquarters of the American Road Congress are in the Colorado building, Washington, D. C.

Day sessions of the Third Annual American Road Congress will be held on the second floor of the Wayne Gardens, Detroit, and the evening sessions and special sessions of the various associations and committees will be held at the Hotel Pontchartrain and at other hotels, to be announced at the sessions of the congress. The tentative program for the congress has been announced. At 9 a. m. Monday, September 29, the registration books for members and delegates will be opened at the secretary's office in the Wayne Gardens, where the badges, programs, cards, etc., will be distributed. The first meeting of the congress will be held at 10 a. m., September 29, and will be called to order by the Honorable Logan Waller Page, president of the congress. The second session will be held at 2:30 p. m. of the same day. A reception or garden party will be held late in the afternoon of the first day in honor of the distinguished guests of the congress. This will be followed during the week by a series of banquets and entertainments by the Board of Commerce, the Wolverine Club, the Rotary Club, the Aderant Club and others. Tuesday's program will be given under the auspices of the American Automobile Association, starting at 10 o'clock. Hon. Frank E. Doremus, M. C., will preside. George C. Diehl, chairman of the Good Roads Board of the American Automobile Association, will introduce the presiding officers. National Aid and National Highways will be discussed by many prominent speakers. The Lincoln Highway Association will occupy a portion of the program. At the afternoon session of Tuesday, State Legislation and Road Management will be taken up under the auspices of the American Bar Association. The manufacturers represented in the session will arrange for special entertainments for the evening. Wednesday will be devoted to Construction and Maintenance and will be under the auspices of the American Highway Association. The afternoon session will be known as the Road Users Session, under the auspices of the American Automobile Association, and on the afternoon of Thursday there will be held a finance session. The American Bankers' Association has charge of this. Friday will be Michigan Day and Chairman P. T. Colgrove, president of the Michigan State Good Roads Association, will preside. On Saturday the congress will close.

Clearfield Quarrying Company, Clearfield, Penna., advise us that they have put in a new equipment for making sand and broken stone, commencing full operation in this department August 15. They also operate extensively in bridge and building stone.

BIG CRUSHING PLANT AT THE SOO.

To S. B. Martin, a large quarry owner and operator of Sault Ste. Marie, Mich., is due the credit of discovering immense bodies of trap rock at Bruce Mines, Ontario, 40 miles east of the Canadian Soo, located on the shores of Georgian Bay, and he is now installing a mammoth crushing plant for the Martins International Trap Rock Company, which will be able to deliver crushed trap rock to all the cities on the Great Lakes at a minimum cost, due to cheap water rates. The plant is also connected by rail to the Canadian Pacific railroad system.

The quarry equipment consists of two 110-ton steam shovels, two large size electrically operated drills and 25 steel 8-yard automatic-dump quarry cars.

The plant has a number of interesting features outside of the large capacity (over 500 yards per hour) and the size of the initial crusher. The crushing machinery, which was furnished by the Power and Mining Machinery Company, Cudahy, Wis., is as follows:

One Superior jaw crusher with 5x7-foot receiving opening; two No. 9 McCully crushers; two 65x24-inch Superior crushing rolls; two 84-inch pan conveyors; two 85-inch by 18-foot McCully stone screens, and two 48-inch by 12-foot shaking screens.

The material is hauled from the quarry in two 8-car trains by two 45-ton locomotives, and dumped directly into the 7x5-foot Superior jaw crusher, which crushes the material to about a 10-foot size. This crusher is the largest size built, the frame as well as the swing jaw and pitman being of cast steel and the jaw plates of manganese steel. These large crushers have been thoroughly tried out and are in no way experimental, this particular machine being a duplicate of a machine built by the Power & Mining Machinery Company and installed at the plant of the Birdsboro Stone Company, Birdsboro, Pa., in February, 1910, for crushing trap rock, which machine has been in steady operation since that date. The crusher at the Birdsboro plant was the first jaw crusher of this mammoth size ever constructed.

From the large jaw crusher the material passes over a short grizzly, the fines going directly to a 48-inch by 76-foot pan conveyor, the over-size passing to two No. 9 McCully crushers with manganese mantles and concaves. The material from the No. 9s is discharged to the same pan conveyor, where it is elevated and delivered into an 84-inch by 18-foot McCully stone screen. From this screen the fines are discharged in a 48-inch by 116-foot pan conveyor, the over-size going to two sets of 54x24-inch Superior rolls. The rolls discharge into this same conveyor, where the material is carried to a second 84-inch by 18-foot screen. The larger finished sizes from this screen are delivered to storage piles by gravity and belt conveyors, the fines being delivered to a cross conveyor and sent to two 4x12-foot double deck shaking screens, and after screening the fines go to other storage piles by gravity and belt conveyors. From the storage piles the material is loaded on vessels by belt conveyors in tunnels under the storage piles.

The storage plant is an interesting feature, both on account of the capacity and the method of handling the rock. The storage provides for approximately 80,000 cubic yards. There are two rows of storage piles, and under each row is a concrete tunnel with feeding hoppers in the roof for feeding the material to the conveyors. Each tunnel is provided with a 40-inch belt conveyor 330 feet long, each conveyor being capable of loading stone at the rate of 750 tons per hour, or a total of 1,500 tons per hour. Near the discharge end of each conveyor is installed a Merrick Weightometer which automatically weighs the material delivered by each conveyor. With this system it is possible to load the largest vessels within a few hours. The layout and location of the plant is such that a duplicate plant can be installed at a later date, or the storage can be increased in the present plant to 120,000 yards, if found desirable, by the addition of one concrete tunnel with loading conveyor and overhead distributing conveyors.

Two large boats are required to carry the stone from the Huron Cement Co., Alpena, Mich., to the Michigan Alkali Co., at Wyandotte, Mich. These boats make three trips a week and are regarded as only a forerunner of what the stone trade will be on the Great Lakes in a few years.

York, Morgan & Garvin, of Billings, Mont., are operating a new quarry for the production of crushed rock and gravel. The rock crusher is of 70 yards' capacity and is operated by an electric engine of 20 horsepower.

The Maiden Creek Limestone Co., of Berks, Pa., was incorporated with a capital stock of \$5,000 on July 19. The incorporators are Paul M. Kohler, D. M. Rothenberger, R. W. Ferguson, O. J. Buchanan and C. G. Potts.

GRUENDLER CRUSHER AND PULVERIZER SALES.

Orders for a number of Gruendler crushing and pulverizing machines have been received by The Gruendler Patent Crusher & Pulverizer Co., of 924-928 North Main street, St. Louis, Mo., including one from A. C. Blowers Lime & Phosphate Co., St. Petersburg, Fla.; also The Hansen Products Co., Grand Island, Neb.; Richards Brick Co., Edwardsville, Ill.; Swift & Co., East St. Louis, Ill.; three machines for the Allneede Mill Co., East St. Louis, Ill.; two machines for the Hill-Brunner Foundry Supply Co., Cincinnati, O.; Earth Products Co., Baltimore, Md., and Colver & Dalcour Co., Lansdowne, Md.

These machines are adapted to a wide range of service, and the increase in the demand for them has caused the company to recently increase its manufacturing capacity.

RAYMOND BROS.' NEW PLANT.

Two months ago the erection of the new plant of the Raymond Bros. Impact Pulverizer Co., at 1319 North Branch street, Chicago, was completed. The plant occupies an acre of ground in the heart of the manufacturing district of Chicago, and possesses the best of railroad transportation facilities. A side-track runs into the large machine shop where cars are loaded with the heavy machinery by means of the electric crane which runs the entire length of the shop. The general character of the buildings of the plant is of the highest type of construction, fire-proof throughout, even the roof being of concrete; all windows are of Fenestre steel sash and the fence around the yard is built with concrete posts and creosoted boards.

The machine shop is 240 feet long by 100 feet wide, containing the numerous drill presses, lathes, planers and boring mills used in the manufacture of pulverizing and air separating machinery which have gained a nation-wide reputation. In this new plant the company has installed additional machinery, all electrically driven, increasing its capacity full 25 per cent and enabling it to do all its own work, for which it lacked facilities before this plant was built in turning out machinery of the biggest pieces. The "Toledo" electric crane runs the entire length of the machine shop of ten tons capacity.

The floor of the shop is of hardwood maple. The machine shop is lighted with twenty-two 150-watt Tungsten lamps and fifty 40-watt Tungsten lamps placed over the benches. During the day the shop is lighted from the sides and through skylights, making it as light as day. The two side bays are 14 feet to the trusses, the center bay is 30 feet to the trusses and the top of crane rails are 20 feet from the floor. It is heated by hot air, generated in two of the largest Royal Smokeless sectional boilers ever made in Utica, N. Y., and a Sirocco fan, capable of handling 40,000 cubic feet of air per minute. Between 75 to 100 of the highest skilled workmen find employment here.

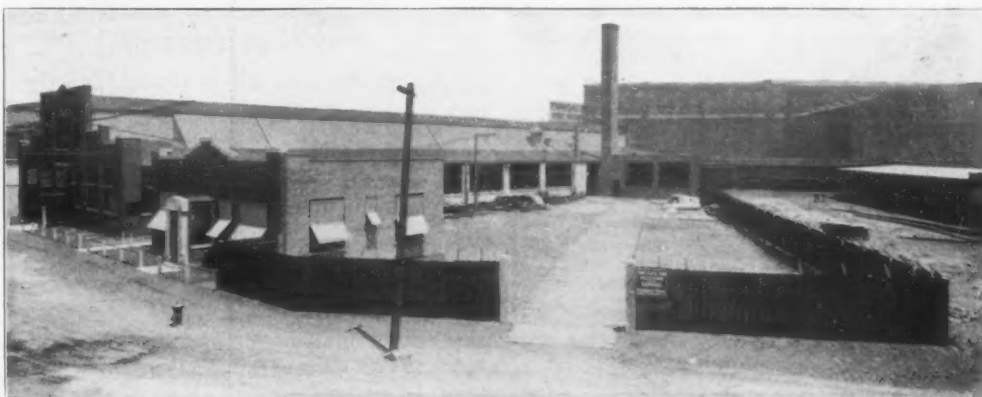
The building containing the offices, the drafting and reception rooms for the clerical force, is heated by direct radiation and the offices fitted with modern all-steel filing cases made by the Art Metal Manufacturing Co., of Jamestown, N. Y. The stock room is fitted with steel shelving.

The sheet metal is stored in specially constructed racks to economize space, and the machinery is laid out and arranged so that the raw material keeps moving in the direction of the shipping room, which is in the rear of the building adjoining the railroad track.

Raymond Bros. have been in business since 1887, and for the past eleven years were located at Harrison and Laffin streets, moving last May to occupy their new plant on North Branch street, which took one year to complete its erection and which is said to be one of the finest plants of its kind in the country in points of construction, location and shipping facilities. The business of this popular firm, manufacturing pulverizing and air separating machinery, has grown so rapidly that notwithstanding the increased facilities of the new plant it is obliged to run double shifts to execute and promptly ship machinery for which it is continually receiving orders. C. M. Lauritzen, vice president and general manager, stated that they were now in a position to execute the largest orders for machinery they manufacture without any delay, and ship it more promptly than they had ever done in the past.

BLASTING WITH WELL DRILLERS.

Since the introduction of well drillers in quarry work the entire idea of blasting in the great crushed rock, cement and lime quarries has been revolutionized. The shot of a 40-foot face where several tons of dynamite are used in the operation is a matter of every day occurrence. Talking to one of the largest lime producers in the country the other day, he described the use of big hole blasts as follows: "We are now working a 40-foot face of solid lime rock in



RAYMOND BROS. IMPACT PULVERIZER COMPANY'S NEW PLANT AT 1319 N. BRANCH ST., CHICAGO, ILL.

our Ohio quarry. We are drilling the holes 15 to 20 feet back from the face and spreading them 12 feet apart. The rock invariably comes out from the bottom so that the top rolls back against the new cut, and the noise from the big blast being so far under ground is as nothing compared with the little shots that we used to make with the 2-inch holes. We also observe that there are no complaints by the neighbors of the shaking of the ground by reason of our blasting, and the only way that we can explain this is that the shot expends its force in the direction of the face that is blown off and not against the strata of rock itself. The explosive being placed so much lower in the ground will explode without making a surface disturbance and whatever shock there is, is so far below the surface as not to be felt in the neighborhood. We figure that the increased safety in the use of big hole blasting in the matter of protection from accidents as well as the increased amount of rock blown off, makes a new economy that is well worth the expenditure for the big hole blasting apparatus."

The Rocheport Stone Co., of Columbia, Mo., has been incorporated by J. N. Fellows, S. D. Chamberlain and T. C. Stone; capital stock, \$2,000.

Clarence J. Wilson and son, William K. Wilson, of Norristown, Pa., recently purchased the large quarry at Santoga which has for some time been operated by the firm of Hoeger & Lawler. The purchase price was not made public.

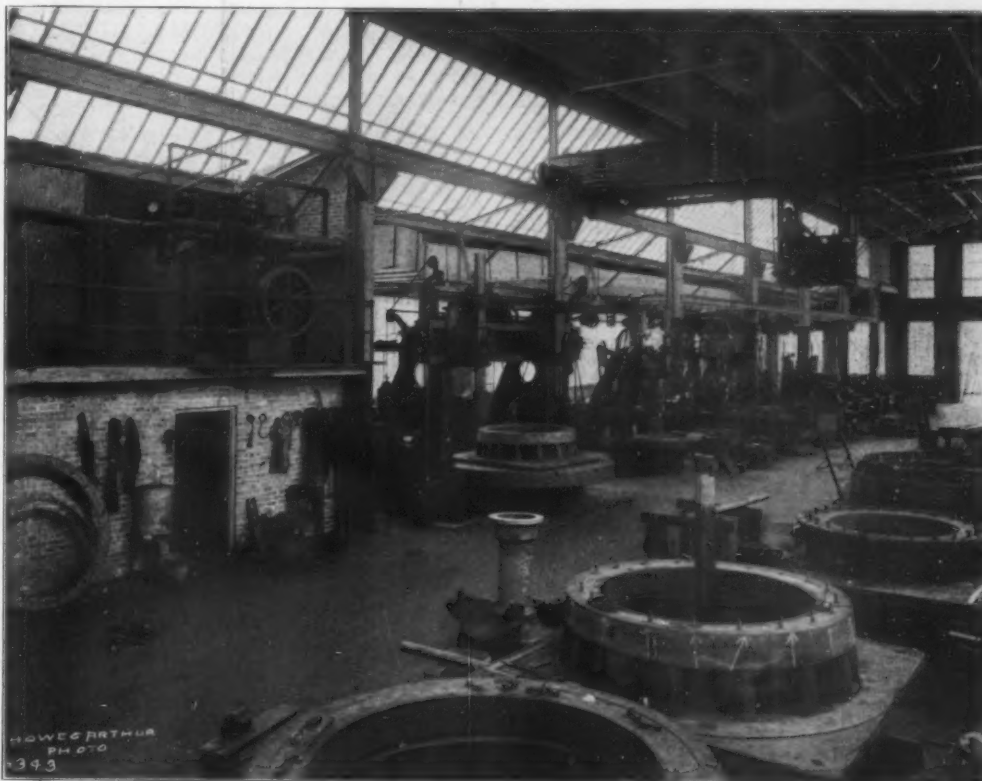
The Long & Saunders Company, Quincy, Mass., capital, \$10,000; incorporators, Charles W. Long, Arthur Crowley, George M. Mayer.

The American Ballast Co., Knoxville, Tenn., has applied for a charter to operate a rock crushing plant. T. H. McCroskey, Jr., is the manager.

Mitchell Brothers, of Stevens Point, are reported to have leased a part of the John Hay property near Big Falls, Wis., and will operate a quarry as soon as necessary machinery can be secured. This quarry is about two miles from Big Falls on the Marion-Big Falls road.

The Grove City Lime Stone Co. has been organized by Harry and Fred J. Hamilton and F. B. De Armitz of Grove City, Pa. It will engage in mining and quarrying lime stone, sand stone, fire clay, iron ore and will also manufacture lime, brick, tile, building stone and coke.

"Rock-Ore and Gravel Handling Machinery," known as catalogue No. 252, has been issued by The T. L. Smith Co., Milwaukee, Wis. The booklet is well gotten up from a printing standpoint and describes in full the machinery manufactured by the company for handling rock-ore and gravel. Many illustrations of the machinery and parts are shown. Particular attention is directed to the new roller chain return track elevator, described in the booklet. This is a new edition to the T. L. Smith Company's line.



INTERIOR VIEW OF RAYMOND BROS. IMPACT PULVERIZER COMPANY'S MACHINE SHOP.

SAND AND GRAVEL

NATIONAL ASSOCIATION OF SAND AND GRAVEL PRODUCERS.

(Meets Annually.)

Officers.

President—F. W. Renwick, Chicago Gravel Company, 343 South Dearborn street, Chicago, Ill.

First Vice-President—H. H. Halliday, Halliday Sand Company, Cairo, Ill.

Second Vice-President—W. F. Bradley, Ohio & Michigan Sand & Gravel Company, Toledo, Ohio.

Third Vice-President—H. F. Curtis, Lyman Sand Company, Omaha, Neb.

Fourth Vice-President—Lee R. Witty, Wabash Sand & Gravel Company, Terre Haute, Ind.

Fifth Vice-President—J. J. Neary, Utica Fire Sand Company, Utica, Ill.

Treasurer—C. H. Brand, Atwood-Davis Sand Company, Chicago, Ill.

Secretary—Chas. D. Warner, Chicago, Ill.

SAN FRANCISCO SAND AND GRAVEL NEWS.

San Francisco, Calif., Aug. 19.—The Grant Gravel Company, of San Francisco, is keeping its gravel pit running at full capacity, some difficulty being experienced from the scarcity of water. The company's business is largely in washed gravel for use on state highway contracts, though the company also furnishes a large amount of roofing gravel in this city, selling only in carload lots.

The Pratt Building Material Company, San Francisco, is making good headway with its sand and gravel business, and reports a number of large contracts for concrete aggregate. One of the largest orders is for the concrete lining of the Union Oil Company's new reservoir at Oleum, near Martinez, Cal., which will be about the largest oil reservoir in the world. This job will take about 200 carloads. Another interesting contract is for about 100 cars of washed gravel to be used in a concrete mausoleum at Woodlawn cemetery, to be called Woodlawn Abbey, south of San Francisco. The building will be of solid concrete faced with Utah mantel. From its Austin Creek pit in Sonoma county this company is shipping all gravel and sand for a concrete bridge, roads and sidewalks in the new town of Woodacre, in Marin county.

GRANITE SAND IN DEMAND.

Marble Falls, Texas, Aug. 19.—The exportation of the excellent granite sand which is abundant here bids fair to establish itself permanently in Marble Falls. Both F. M. Jones and John Thompson have kept crews of men at work for some time sifting and loading this sand, and they report that the demand is so great that they have difficulty in getting cars enough to load in.

WAGON LOADERS FOR HANDLING SAND, STONE AND GRAVEL.

By Howell C. Pratt, Engineer, Link-Belt Co., Philadelphia, Pa.

In the Stone Age men who had need of a quantity of sand or stone, went to the nearest source of supply, filled a sack or skin by hand, slung it on their shoulders and walked back with it. Later some inventive genius constructed wagons or carts, and the more or less round wheels were probably looked upon as the last word in mechanical invention. After a while a shovel for loading carts was invented, and this combination of carrying in carts and loading by shovels has been in universal use ever since. Railroad cars are carts adapted to long hauls, and automobile trucks have somewhat replaced the horse-drawn vehicles, but the loading of these, except in very large operations,



LINK-BELT MACHINE FOR LOADING SAND.

is slow and done by hand labor. With the introduction of the steam shovel and the automatic grab bucket, a great advance in speed and economy was made, but the first cost, and difficulty of moving these outfits about, make them economical only where they are used in the same place or moved a moderate distance.

This is the second Stone Age. The tremendous increase of the recent years in the use of sand and stone, due to the growth of concrete work, and the great amount of road building, has caused the handling and re-handling of millions of tons of material, and in nine cases out of ten it has been done in the original shovel and cart way. This is especially true in the case of road building, where the location of the work is constantly changing, making necessary the loading and unloading of all the material used in construction. The unloading has been simplified by the dump carts and self-dumping wagon, but the loading has been done by the same conditions which the ancients used—the man with the shovel. This is hard and exhausting work, and with the constant increase in wages and shortening of the length of the standard working day, has become a large and uneconomical item in the cost of any large piece of work. In these days of close margins and competition, nobody can afford to overlook any department of his business which is capable of improvement along the lines of efficiency; and here, in the loading of carts, we have a source of waste, and a very large one, which is increasing each year by leaps and bounds, in direct proportion to the amount of material to be handled.

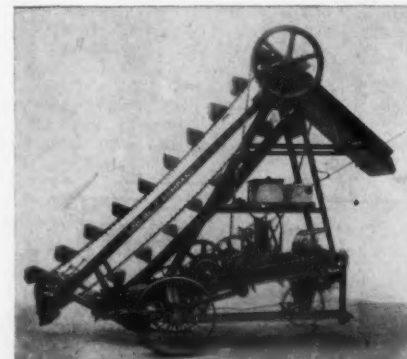
For example: Suppose you have a contract which includes the loading of several thousand tons of sand, stone or gravel from piles on the ground to cars or carts. The pay of laborers, the cost of transportation in carts, the first cost of the material, the unloading of the material from the carts, these are all practically fixed amounts. The cost of loading the material from the storage piles into carts, however, is

capable of a large reduction. This can be done by the use of an elevator mounted on wheels so as to be regularly moved about, and operated by small motor or gasoline engine. Such a machine is shown in Cut No. 1. It consists essentially of a single strand bucket elevator, with buckets attached at intervals of about 2 feet, the whole mounted on a steel truck with large wheels. The elevator delivers to a chute from which carts are filled. The continuous feature of this elevator makes possible a high capacity, and the short lift uses but little power. For handling gritty materials, a chain is used which has in its joints case-hardened pins and bushings which greatly prolong its life; and for handling material like crushed stone, the buckets are fitted with manganese steel digging teeth or prongs, to prevent the excessive wear caused by the stone. These machines are not "diggers" in the sense that they can be run back into a pile and made to dig it up, but the material must be trimmed by hand to the foot wheel by one or more men. The machine thus saves the labor of lifting the dead weight from the ground level over the side of the cart, and of course, when handling material such as sized gravel or anything that runs readily, a large amount can be fed to the foot of the machine by cascading or pulling down by shovels. This is especially true in handling hard coal or dry sand where the angle of flow is fairly flat.

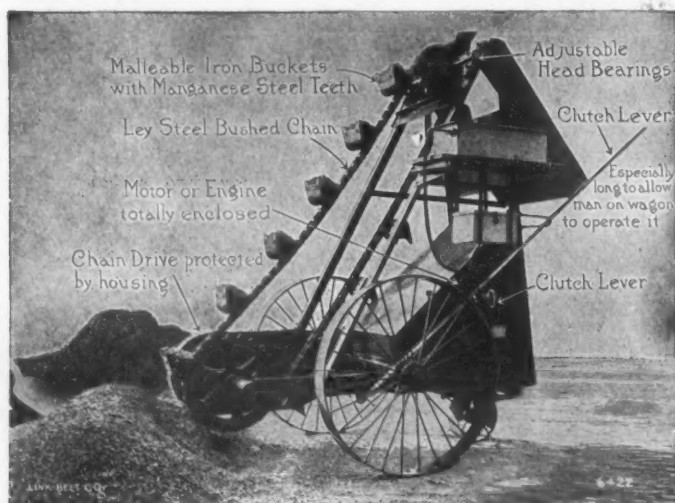
In actual operation, the engine of the machine is started, and a clutch thrown in, which puts the chain and buckets in motion, and the machine is backed into the pile until the buckets strike the material. They will pull through the material as long as it flows by gravity, but finally the buckets will have made for themselves a clear path. The material is then trimmed or fed by men with shovels into reach of the buckets, and it is so much easier for men to push the material down in this way than to throw by shovelfuls into the cart, that two men with one of these machines have handled sand at the rate of forty tons an hour, and one man working on hard coal can handle a ton a minute. Here, then, is the source of economy. By the use of a simple machine, such as outlined above, two or three men can put material into carts at a rate which would require at least ten men if using shovels in the old-time way. In dollars and cents it has been proved that a saving of from 5c to 10c a ton can be made in handling materials in any large quantity. From this it is easy to see what a large field there is for this type of machinery, and what a large saving can be effected when the quantity is anything over 20 tons a day. Portable loaders are also being used by a number of concerns merely to relieve the congestion in their yards, even though the loading is done by the cart drivers who are paid by the purchasers of the sand.

Starting with the original idea of an elevator mounted on wheels, a surprising number of modifications have been made in their use. Cut No. 3 shows one of these. It consists essentially of the addition of a rotary screen at the head of the elevator, delivering screenings to one chute and rejections to another. This type of machine has been used mostly for repaving macadam roads. The old macadam is plowed up and broken, and fed by a gang of men to the foot of the elevator, which delivers it into the screen. By means of the screen the sand and dirt are taken out and delivered to a wagon on the side, and the rejections of the screen, consisting of screened material of a certain size, are delivered to a wagon on the other side and can be used over again for the new work. It is very easy to see what a large saving this effects, to produce a clean sized product, right on the scene of operation, ready to use, and loaded in wagons.

Another modification of these machines is shown in Cut No. 4. On this type, driving gears have been added to make the machine self-propelled in either



EQUIPPED WITH BEVEL DRIVE AND STEERING GEAR FOR SELF-PROPULSION.



LINK-BELT PORTABLE LOADING MACHINE FOR RAISING MATERIALS TO WAGONS AND CARS.



EQUIPPED WITH ROTARY SCREEN AND ESPECIALLY ADAPTABLE FOR REPAVING WORK.

direction. The operator stands on the running board at the head of the frame, with his starting and stopping levers, steering gear and engine control, all within easy reach. The advantage, of course, of the self-propelled type is in traveling short distances, and in moving from one bin to another where several kinds of material have to be handled. The capacity of all of these types of machines is about 50 tons an hour, but this, of course, can be very easily increased or cut down by changes in the size of the buckets. In actual practice, while the buckets have a theoretical capacity of 50 tons an hour, the amount of material delivered into the wagon by the machine depends entirely on the uniformity with which the material is trimmed or fed to the machine, and this is largely a matter of practice with the trimmers.

Cut 2 shows another form of machine designed for handling sand. The elevator is made slightly steeper, and the spout at the head is pivoted so that it can discharge in front or on either side of the machine. This feature makes for speed. In a case like the one shown in the cut, a car can be run to one side of the machine and be filled, and in the meantime another car placed in position at the far side. The spout is rotated through 180 degrees, which delivers the supply at once to the second car, eliminating practically all waiting for cars. The elevator shown in the cut was installed in a sand bank 40 to 50 feet in height, and on account of the soft nature of the ground was operated on planking. A large amount of material, however, can be trimmed down the bank without moving the machine. When the angle of repose of the sand is about reached, 2 or 3 feet is cleared away from in front of the wheels, and two or three planks are laid on which to roll the machine back within reach of the bank.

From the fact that most sand or gravel banks and sand piles are remote from the source of electric current, a majority of these machines are equipped with gasoline engines. The engines are similar to those used on agricultural and farming machinery, and are fitted with a magneto which saves all trouble with batteries, and also a governor to keep the speed within limits. The load on the elevator is of course, constantly varying, and the use of the governor prevents any racing of the engine at periods of light load.

Cut No. 5 shows one of the most successful applications of the portable loader. This machine is being used on a contract calling for several miles of concrete road bed, 20 feet wide and 6 inches thick. The stone and sand are deposited by carts in piles as shown, at intervals of about 200 yards. The concrete is mixed in a portable mixer, and the value of a wagon loader here is in the speed in which the wheelbarrows can be loaded for filling the mixer. The loader was fitted with a special chute and gate for

filling the barrows, and the chute has a capacity of several barrow loads of stone. The one or two men can keep the hopper full, and when a man wants a barrow load of stone he can get it in less than five seconds. The foreman in charge of this work states that from his previous experience in road building, he estimates that three men and this machine replace a force of ten men, which he has had to have for this operation on all his former work. The upper chute on this loader is of course used for filling wagons, and is put in operation by the closing of the gate leading to the wheelbarrow storage hopper. The location of the stone and sand piles, and the quantities in them, are calculated to keep just ahead of the finished road-bed, and when one pile is used up, the mixer and loader are pulled by horses to the next stone pile.

Another very successful application of the wagon loader is in quarries, where there are no storage pockets. Stone can be stored in fall and winter, and at a very small proportional cost it may be reloaded into carts and wagons for shipment at the height of the season. Most quarries find a ready market for all the stone they can produce in the summer, and it is a well known fact that larger quantities of this material could be sold if the producers stored the stone in large piles. Heretofore, because of the high cost of moving these piles, it was not considered wise to make large storage piles. With the portable wagon loader, however, these large piles are now moved with the minimum of expense and at a good profit.

While a great many portable wagon loaders are in successful daily operation handling stone, sand, gravel, coal, earth, pyrites, etc., their general use for loading materials is only in its infancy. With the increased difficulties of securing efficient common labor, employers are finding it profitable to use modern labor-saving machinery. The wagon loader will not go on strikes, or lay off on special holidays, etc. Teamsters, as a rule, are well pleased with the loading machines, as they are relieved of the work of shoveling into wagons. All the wagon loaders described in this article were manufactured by the Link-Belt Company, of Philadelphia and Chicago.

Louisville, Ky., Aug. 19.—Captain Joseph Hurst, 67 years of age, and one of the best known men on the Ohio river, died recently in Louisville of gangrene, following an illness of three months. He had been general superintendent of the sand pits of the Ohio River Sand Company, of Louisville, at Twelve-Mile Island, for twenty years, and prior to that time ran on various river boats as pilot and captain. He made his home on the Island, where he worked. His widow and two brothers survive him.

The Nugent Sand Company reports that it is handling a good business in sand at the yard, many contractors sending their teams for their own material. The location of the company, in the western part of the city, is convenient to a large amount of street, sidewalk and building work which is going on in that part of the city, and this accounts for the large volume of the kind of business referred to.

"Concrete Roads and Pavements," by E. S. Hanson, is just off the press. The volume is not merely an argument for concrete roads and pavements, although it sets forth the advantages of this type in as strong terms as the author has been able to command; but the aim has been to produce a book which can be taken by one who knows nothing of the subject, and by the aid of which he can build a concrete road or pavement which will be serviceable and enduring. The book is copiously illustrated with photographs of actual work in process or completed, and with drawings illustrative of the text. The appendix gives several sets of specifications for roads and pavements which are recognized as authoritative, as well as specifications for the patented systems described, and specifications for bridges and culverts, sidewalks,

curbs and gutters. The book contains 228 pages and the price is \$1.00. Copies may be secured by remitting to this office.

The Beach City Silica Sand Co., of Beach City, O., has increased its capital from \$25,000 to \$35,000 and will extend its operations.

The Janesville Wisconsin Moulding Sand Company has been incorporated at Janesville, Wis., with a capital stock of \$25,000 by H. L. Maxfield, J. F. Pemberton and T. W. Nuzum.

The Foxburg Sand Co., of Pittsburgh, which has offices in the Bessemer building, on Sixth street, has increased its capital from \$25,000 to \$50,000 in order to extend its operations.

The Mid-Continent Glass Sand Co., Oklahoma City, Okla., has been incorporated by D. L. Larsh, of Norman, T. W. Clelland and George Thompson, Jr., of Oklahoma City; capital stock, \$40,000.

A new sand dredging company is the Ohio Dredging Co., of Pittsburgh, Pa., which has been incorporated under Delaware laws by C. E. Franklenberry and J. H. Welcher, of Pittsburgh, and J. J. Chantler, of Beaver, Pa.

M. A. Jacobs, of Willows, Cal., and C. M. Davis, of Butte City, Cal., have leased the Orland gravel pits from C. L. Donahue, and are putting in a new loading machine, expecting to go into the gravel business on a large scale.

The Greenville Silica Sand Co., of Greenville, Pa., will build a large storage plant there soon. The company has resumed at full capacity following a shutdown to permit a reorganization. Considerable new machinery has been installed.

The W. C. McClelland Gravel Co., Columbus, Texas, expects to have its plant in operation within a few days. The capacity of the plant will be about 1,000 cubic yards of crushed gravel per day. A fine quality of sand for concrete work will be washed.

J. R. Davidson, of Connellsville, Pa., has leased the Taylor tract of 22 acres in Bullskin township, Fayette county, Pa., and will arrange at once to mine the rich deposit of silica sand thereon. The plant proposed will mine 200 tons of sand a day on a royalty basis.

The Rodgers Sand Co., of Pittsburgh, has been putting in two busy months. Its diggers are all working, and while the total of its sales has not been so large as they hoped for earlier in the season, the year's business to date has been pretty satisfactory.

The Mid-Continent Glass Sand Co., Oklahoma City, Okla., is building at Roff, Okla., a modern sand plant to supply the glass manufacturers of Oklahoma, Texas and Kansas with a satisfactory quality of white sand. The tract of land includes an inexhaustible deposit of pure white sand, the analysis showing 99.74 per cent silica. Machinery is now being installed of the latest type, which will give the sand the most thorough washing, screening and drying process known. The initial capacity will be 300 tons daily and it is expected that the plant will be in operation by October first.

Thomas J. Howard, Jr., has been appointed receiver of the Kennerdell Silica Sand Co., whose operations are in Rockland township, Armstrong county, Pa., and whose headquarters are at Kittanning, Pa. The appointment resulted from the filing of a bill in equity against the company by Richard M. Kirschner, a stockholder, who said that the company had no ready money to meet its obligations. The company has a capital of \$13,000, of which \$11,500 is issued. It owns outright 65 acres in Rockland township, worth \$25,000, and its plant and equipment are valued at \$15,500. The debts amount to about \$20,000, of which \$10,000 is a first mortgage and \$4,000 the second mortgage on the plants and owing to general creditors.

A suit was filed July 11 by the White Rock Gravel and Sand Company of Waco, Tex., against the International and Great Northern Railroad Company. Actual damages in the sum of \$879 are asked, and the petition prays for penalties against the road in the sum of \$500 each on 316 cars of sand and gravel, making a grand total of \$158,000 for this one item. The amount asked for penalties is sought by reason of alleged extortion on the part of the defendant company. It is claimed in the petition that the I. & G. N. has refused to absorb the switching charges, as provided for in a ruling made by the railroad commission, referring to carriers receiving consignments from other roads. The petition recites that the I. & G. N. has refused to absorb switching charges in excess of \$2.50 per car.



LOADER IN USE ON CONCRETE PAVEMENT WORK EQUIPPED WITH TWO CHUTES, THE UPPER FOR WAGON-FILLING, THE LOWER FOR WHEELBARROWS.

A MODERN SAND AND GRAVEL WASHING PLANT.

The Fisher Sand & Gravel Company, of Beloit, Wis., have been operating their new gravel washing plant for the past six weeks and states that they have one of the simplest and best plants of its kind. The material is excavated at present by a Thew steam shovel, which delivers the material into a movable hopper over a sectional field conveyor.

This field conveyor is of unusual design, in that instead of a continuous wood frame for supporting idlers there are separate frames built up in sixteen-foot sections with cross supporting timbers, which act as sled runners for shifting sidewise. This design enables the men to shift the conveyor readily and also to adjust quickly should the belt run out of line. The plant was designed and erected by The Raymond W. Dull Company, of Chicago, who equipped the plant complete with their machinery.

The field conveyor is made in two sections, one of which is horizontal and the other inclined. The latter delivers the material over a bar grizzly, which separates the over-size stone from the mass and spouts it into a No. 5 Austin gyratory crusher. The fines go direct to the main inclined conveyor belt, as does also the crushed stone from the crusher.

The main conveyor belt delivers the sand and gravel to the top of the bins, where it is washed and graded by two rows of Dull's inclined conical washing screens with three screens in each row, then into two steel sand separators.

The bins have shipping tracks on both sides and the plant has a daily capacity of 30 cars.

HOUSE BILL PROVIDES FILING OF BRIDGE PLANS.

House bill No. 689 has been introduced by Mr. Barker before the Illinois legislature and was referred to the committee on roads and bridges, after being read by title only. The bill specifies that whenever there shall be constructed upon a public highway or street a bridge or culvert in which the distance between the abutments exceeds ten feet, made of concrete, complete drawings of such bridge must be filed with the county clerk not later than ten days after the bridge is opened for use by the public. Should the state highway commission decide that the drawings do not comply with all the provisions of the act, notice of any difference shall be communicated within five days after receipt of the drawings by the commission to the county clerk, who shall notify the contractor or other person or persons in actual charge of the bridge in question, who shall in turn cause to be added to the plans such additional information, or have other plans prepared, as the case may require, and refiled, the proceeding to be the same as if no drawings had been placed on file. A section of the bill provides that failure on the part of the contractor, or others in actual charge of the erection of such structures, to comply with the provisions of the act shall be deemed a misdemeanor and, on conviction, subject each of them to a fine of not less than ten dollars nor more than twenty-five.

ROCK DRILLS IN THE TRANSVAAL.

[Consul Edwin E. Gunsaulus, Johannesburg.]

Six thousand rock drills are now in use in the Province of the Transvaal. Of this number, 5,983 were employed on the Rand at the time the statistics were taken, the remainder being in use in other mining districts of the Transvaal. According to government statistics recently published, the actual number of rock drills in commission on the Witwatersrand was 9,018.

At the last annual meeting of the Chamber of Mines the chairman, in his address, referred to the subject as follows:

"As far as the underground work is concerned, I would like to mention the truly remarkable increase that has taken place in the use of rock drills in the last few years. The earliest reliable figures at my disposal show that the gold mines in 1908 used 2,425 such drills, and ever since then their number has been steadily increased, until last year it reached 5,530, or more than double the number that were in use in 1908. While formerly only large machines were used, the mines now have a number of small machines of various types at their disposal, but the last word with regard to drills has by no means been said yet. I understand that no drill is absolutely ideal and applicable to the different reef conditions obtaining in a mine, thus calling for various types having to be used in each mine. The endeavors of the manufacturers to supply us with what is really required deserve a word of praise, and it must be hoped that eventually they will succeed in turning out a drill meeting all our requirements."

Rock drills of American manufacture are extensively used by the gold and other mines of the Transvaal.



SIDE VIEW OF FISHER SAND & GRAVEL COMPANY'S PLANT, SHOWING CRUSHER HOUSE.

Articles of incorporation were filed in Lansing, Mich., the latter part of July by the Universal Sand and Gravel Company, Washtenaw County. The capital stock is \$30,000.

The Seeter Gravel Co., Van Buren township, Indiana, has been incorporated with a capital stock of \$50,000. The directors are E. O. Seeter, John F. Dawson, Noah Cripe, Wm. R. Seeter and Emma Seeter.

A new sand company has been organized in Des Moines, Ia., by A. J. Harkins and C. V. Ray. Sand pumps have been installed in a tract at Twentieth street and the Des Moines River, owned by the company, and a high-grade quality of sand is now being taken out. The company is known as the Capital City Sand Company, with offices at 308 West Fifth street.

Pittsburgh, Pa., Aug. 15, 1913.—An important decision relative to sand equipment was handed down recently by the United States Circuit Court of Appeals at Pittsburgh, Pa. It confirmed the decision handed down more than a year ago by the federal courts in Ohio in which the Safety Armourite Conduit Company, of Pittsburgh, was the plaintiff. This company owns through assignment a patent ten years old on a special method of sand blasting for preparing the interior surface of metal pipe for enameling. Several years ago the Mark Manufacturing Company, pipe manufacturers with plants in Zanesville, Ohio, and Evanston, Ill., began to use this process, which is known as the Garland Sand Blasting patent, and the Safety Armourite Company brought suit for infringement. This latest decision fully establishes the claim of the latter company and makes the Garland patent very much more valuable in such lines of manufacture.

The Houser, Owen & Ames Co., Grand Rapids, Mich., is contemplating the erection of a large gravel plant north of that city.

The Chillicothe Sand & Gravel Co., at Chillicothe, Ill., is now in operation, its first shipment being made July 20. This is the fourth steam plant at this point taking out gravel for commercial purposes. A. E. Hancock and J. S. Robinson are in charge of the company.

The Mission Rock Co., which recently started operations at San Diego, Cal., is making arrangements to install a sand washing plant. The incorporators of the company are F. G. Goggins, L. T. Daley, G. Pierce, G. W. Pierce and J. Murphy.

The Iron City Sand Co. is steadily increasing its operations and this summer is enjoying a good trade. A new boat which it is having built at Dravosburg, Pa., will make the equipment of this company equal to that of any company operating on the local rivers.

J. Thomas Duffy, one of the principal stockholders of the Ohio River Sand Company, of Louisville, who surprised his friends by marrying suddenly in March, is expected home from Chicago within a few days, bringing with him his bride, who was a resident of the Windy City before her marriage to the sand man. The couple left for a trip around the world immediately following their marriage. Mr. Duffy is widely known in Louisville and congratulations on his unexpected matrimonial venture have been numerous, as he was regarded as a confirmed bachelor.



FISHER SAND & GRAVEL CO., BELOIT, WIS., SHOWING PLANT, FIELD CONVEYOR AND STEAM SHOVEL.



THE NATIONAL LIME MANUFACTURERS' ASSOCIATION.

(Meets Semi-Annually.)

Officers.

President—Wm. E. Carson, Riverton, Va.
 First Vice-President—J. King McLanahan, Hollidaysburg, Pa.
 Second Vice-President—Lowell M. Palmer, Jr., New York, N. Y.
 Third Vice-President—Geo. E. Nicholson, Manistique, Mich.
 Secretary—Fred K. Irvine, Chicago, Ill.
 Treasurer—C. W. S. Cobb, St. Louis, Mo.

Executive Committee.

Wm. E. Carson, Chas. Warner, L. Hitchcock, W. M. Hunkins.

3 AGRICULTURAL LIME.

In answer to questions which come to Rock Products nearly every day, "What is lime good for as a fertilizer?" we have prepared the answer for future inquirers as follows:

In the strictest sense of the word lime cannot be considered as a fertilizer, but the action of lime on the soil under proper conditions begets results which the farmer has been accustomed to attribute to the use of fertilizers.

Now, lime acts in three different ways upon the soil. It has a chemical action, a physical action and a bacteriological action. Lime is the greatest of the chemical bases and the chief alkali goes into combination with nearly all of the acids making soluble compounds (in water) out of insoluble acid compounds wherever the two classes of materials are brought together. All of the materials found in nature are compounds of one kind or another.

Lime is found in the earth principally in the shape of a gas rock and the gas has to be driven out before the pure lime can be produced. The same thing applies to every element of nature. Everything is found in the shape of a compound and the bases are the final determinations or separations of compounds so as to secure the active and readily uniting elements to stand alone, and the lime base is the chief alkali as stated. All soils contain potassium in a compound with silica and this compound is insoluble in rain water. The soil also contains phosphorus again combined with silica and is also insoluble. Both of these compounds are acids and the lime acts upon them in such a way as to displace some of the potassium and some of the phosphorus and changes the former insoluble compounds into soluble compounds so as to make them available for the use of plant life. As soon as the compounds of potassium and phosphorus become soluble by the action of lime so that the roots of the plant can take them up, then the result in plant development and growth is somewhat parallel to that which would be obtained by the use of fertilizers, and this is the actual connection of the expression of using lime as a fertilizer, or the basis of such an idea in the mind of the horticulturalist.

The physical action of lime upon the soil is best explained by saying that it makes the soil more porous. It separates clay into smaller particles so that the little suckers at the end of the roots can come in contact with a larger number of particles. The little suckers at the terminals of the roots are something like a sponge and have what are known as vegetable acids that combine with the particles of the soil with which they come in contact to dissolve those little particles and secure out of them that part which is useful to plant life and which is brought up through the root to that part of the plant which is above ground and makes the plant grow by the further process of expelling oxygen from its leaves and taking on acid gas from the atmosphere with the other side of its leaves so as to send the acid down to the roots again to supply the little sponges, and by this circulation the plant grows. The porosity of the soil being increased by the presence of lime in the humus or the clay immediately below the humus, the physical condition of the soil is made easier for the efforts of the plant to put forth its roots to find plant food.

The bacteriological effect of lime has the effect of

promoting the life and health of the microscopic insects which live in the soil. There are known to be several types of microscopic insects which gather nitrogen from the air and change it into soluble nitrates in a form which is available for the plants. These insects of infinitesimal size cannot live in an acid soil. Other classes of insects propagate as parasites upon the roots of clover and alfalfa and similar crops, and their increase in the soil is the real secret of the improvement of the land by raising the leguminous crops. Lime in the soil makes it possible for these insects to propagate freely and in that way the lime assists the leguminous plant to improve the soil upon which it is grown. Another species of the insects or bacteria are those that gather nitrogen in the decomposition of vegetable matter in the soil itself, such as manure, weeds, straw or any other organic matter that may be buried in the top soil. This species of bacteria cannot exist except in an alkaline soil, one that is rich in lime.

It is easy to determine whether any given soil requires lime or not in the following way:

Purchase a little blue litmus paper at a drug store. Take a sample of soil—a handful or so—from the place where you think it is acid and put it in an ordinary tumbler. Then carefully insert the litmus paper in this soil by making an opening in it with the blade of a knife and inserting the paper into this opening. Then press the soil close to the paper and add clean water until it is thoroughly soaked. Allow it to stand for fifteen or twenty minutes; then remove the litmus paper and carefully wash it off with clean water. If the blue paper has turned quite red the soil is strongly acid; if it has turned slightly reddish the soil is slightly acid.

It is a good plan to handle litmus paper with a pair of tweezers, because the perspiration of one's fingers is sufficiently acid to turn blue litmus paper red. In this way you will eliminate all chances of error that might arise from handling it carelessly with the fingers.

This suggestion for testing the soil can be handed to your farmer customers as a practical way of finding out how much lime their soil may need.

THE DUST PREVENTION IDEA.

The use of diluted calcium chloride which is being used for dust prevention is getting to be pretty well established. Experiments that have been made in various localities go to show that the calcium chloride application does not have the bad smell which is unavoidable where crude oil is used for that purpose, and it does not have the tremendous disadvantage of coming out on the cracks so that the people track it onto the sidewalks and into their buildings they enter after stepping upon the streets. It is estimated that two applications of the diluted liquid during the season is all sufficient to keep the dust from flying and thereby abating one of the worst of modern nuisances. The production of calcium chloride of the type suitable for such purposes is a very simple side line for the lime manufacturer and one which may grow in the future into an important branch of that industry. At least it is well worth looking into and costs little or nothing to make a demonstration of the treatment for the public right around the lime plant itself, and such things have been known to pay.

The Charlevoix Rock Products Co., Charlevoix, Mich., elected the following officers at the annual meeting, July 20: President, F. H. Aldrich; vice-president, Harry Nichols; secretary, E. L. Buell; treasurer, A. Bultars; directors, A. H. Buzard, David Croncy and G. H. Mott. The lime plant of the company is to be enlarged and the management was instructed to rush the completion of a large conveyor to supply stone to the new kilns direct from the bins. The new plant will be finished by September 1.

T. C. Andrews & Co., Norfolk, Va., is planning an addition to its lime plant, and is in the market for machinery for loading material to and from barges.

Shank & Etzler, of Woodsboro, Md., have purchased the lime works of Gilmer Schley, near Frederick, Md., and plan enlarging kilns.

The Michigan Lime Company, Grand Rapids, Mich., formerly the Northern Lime Company, has dissolved. A notice of dissolution, stating the sale of all property and franchises and that the corporation is now entirely out of business, has been filed in the county clerk's office.

GREAT OUTPUT OF LIME.

Production for 1912 More than Three and a Half Million Tons.

Figures obtained by the United States Geological Survey from the producers of lime throughout the country show that in 1912 the demand for lime was greater than ever before and that the resulting production was the largest in the history of the industry. The total production of lime in 1912 was 3,529,462 short tons, valued at \$13,970,114, as compared with 3,392,915 short tons, valued at \$13,689,054 in 1911, an increase of 136,547 short tons in quantity and \$281,060 in value.

The total number of plants operating in 1912 was 1,018, as compared with 1,139 in 1911. This decrease in the number of producers was due in large part to the inactivity of small kilns operated by farmers for burning lime for local use as a soil sweetener and in part to the tendency of the industry toward concentrating plants into fewer and larger units. The heaviest decrease in the number of producers was in Pennsylvania, a state in which it has been a common practice for many years for farmers to burn small quantities of limestone quarried on their own farms for private use, and this large decrease is due almost wholly to the farmers' later practice of buying their lime already burned and to their use of fertilizer in preference to lime.

The five leading states in 1912 were, in the order of production, Pennsylvania, Ohio, Wisconsin, West Virginia and Maine. Maine has supplanted Missouri, which occupied fifth place in 1911. Pennsylvania, which has long held first rank in both the quantity and the value of lime produced, in 1912 made a total output of 849,159 short tons, valued at \$2,679,420.

The uses to which lime is put are many. The quantity of building lime used in 1912 was 1,556,446 short tons, which exceeded that of 1911 by 67,879 tons, but that the value, \$6,571,479, was \$184,410 less than the value in 1911. There was a slight increase in the use of lime by chemical works, paper mills and tanneries, but a decrease in its use in sugar factories. The use of lime in fertilizers also increased, the figures for 1912 being 604,607, valued at \$1,852,530, compared with 596,664 short tons, valued at \$1,714,386, in 1911. This increase in the use of lime on the land may perhaps be attributed in part to the tendency in recent years of city people to go back to the farm or to take up agricultural pursuits on a scientific basis.

Lime is also used as a plant food; it has been the common practice for farmers in some part of the country to spread it upon the fields and plow it under in order to sweeten the soil. The use of lime renders available the plant food already contained in the soil.

A copy of the report may be obtained free on application to the Director of the Geological Survey, Washington, D. C.

PULVERIZED LIMESTONE FOR AGRICULTURAL PURPOSES IS THE MOST VALUABLE NEUTRALIZER OF ACIDS IN THE SOIL.

By Geo. C. Videtto.

Millions of acres of once fertile lands have become non-productive, now agriculturally abandoned and to such an extent that observing travelers ponder over our 500 per cent increase in population during the full time of one life, and question an equal replenishment of the soil, while his observation leads him to believe that it has been actually subdued.

Lack of production is said to have increased the cost of living, hence may it not be safely questioned, have we not been subdued instead?

Science, rather than the man who sells high-priced fertilizer stimulants which enriches him instead of the soil, has brought about an average yield of wheat of 29 bushels per acre in Germany, compared with 14 bushels in the United States. The benefits of science are thus disclosed. The combined area of Germany and Virginia is less than that of Texas, but science in agriculture is taught in 23 universities and in 415 other colleges and schools in Germany.

Would not such institutions indicate the reason why the toiler of the soil in Germany produces more wheat per acre? Would it occur to one that not one man in a hundred in immediate control of the land in the United States has a quantitative knowledge of what the soil contains or what the crops require?

Not one of us but what will insist that the farmer is honest in his efforts, that he has learned the art of agriculture in a school of actual experience—to plow and plant, to cultivate and harvest—but has he not sacrificed the fundamental principles in science of agriculture which must underlie economic restoration and permanent maintenance of the fertility of the soil?

The wealth of our country is in her soil, and her strength lies in its intelligent development. Would it not be warrantable to write across the face of every university and other school these words, and add that "Agriculture is the Root of Our Country's Prosperity."

A section of country wherein limestone abounds is a rich country. This is a truism older than American agriculture. Every soil can be made a limestone soil simply by adding pulverized limestone. Two to three tons of pulverized limestone per acre applied every four or five years, at an average cost of \$1.50 per ton, affords a positive enrichment of the soil that in turn produces profit.

It would be well—indeed advisable—for every tiller of the soil to consult with Dr. Cyril Hopkins, of the University of Illinois, perhaps the greatest authority on soil fertility in the United States.

Reports of actual and extended experiments by the Pennsylvania agricultural experiment station, the Maryland experiment station, the Ohio experiment station and the agricultural department of the University of Tennessee, afford most generous proof of the value of pulverized limestone for agricultural purposes.

That many farmers in various localities have informed themselves and are using pulverized limestone is a creditable fact; that the use of pulverized limestone has increased many fold is noted in particular by the manufacturers of pulverizing machinery.

Limestone is the most valuable rock for commercial purposes we have. It abounds in diversified localities, yet in sufficient close proximities to become available for agricultural purposes in nearly all sections.

A remarkable deposit of marl, otherwise precipitate deposit of carbonate of lime, in extent equal to 20,000,000 tons, located near Covington, Va., will be developed by the Ohio C. Barber Fertilizer Co., of Akron, Ohio.

A spring gushes forth from the summit of the Blue Ridge mountains, the water is clear, cold and sparkling, and is laden with carbonate of lime. It has been said that the fact that the lime forming the marl or limestone had been held in solution was proof that it was soluble. Analysis discloses it to be 97.07 per cent calcium carbonate.

The Ohio C. Barber Fertilizer Company is installing a water power equipment with a view of utilizing the spring's 500 cubic feet of water per minute, as it leaps over the mighty ledge or deposit of marl, a sheer fall of 160 feet.

A narrow gauge railroad is being constructed over which the marl will be carried to the main line of the C. & O. railroad, where the pulverizing plant will be located.

Two large American Ring Pulverizers, manufactured by the American Pulverizer Company, East St. Louis, Ill., will be installed, one of which is now on the ground.

The power will be a hydro-electric development, Westinghouse electrical equipment, and Pelton Water Wheel Company turbine.

Ohio C. Barber is president of the Diamond Match Company. Mr. Barber is much interested in scientific farming and became interested in the above project because he found therein a deposit of great value for soil enrichment.



BUILDERS TO MEET DURING PAVING BRICK MANUFACTURERS' CONVENTION.

We have received the following interesting item from H. H. Macdonald, assistant secretary of the National Paving Brick Manufacturers' Association:

Engineers and contractors from many sections of the country are to gather at Cleveland, Ohio, September 17 and 18, on the occasion of the tenth annual meeting of the National Paving Brick Manufacturers' Association. In former years the association has held its annual meetings during winter months, but at the last yearly assemblage of the paving brick manufacturers it was decided to hold future conventions during an "open season."

This will afford, instead of the usual program of written papers, discussion and criticism of brick street and brick road construction methods while work on the highways is in actual progress. The large amount of construction work in Cleveland and Cuyahoga county will afford splendid opportunity for investigation in a most practical way.

Chief Engineer Robert Hoffman and Paving Engineer Joseph Bayne, of Cleveland; Chief Engineer Frank R. Lander and Road Engineer James M. McCleary, of Cuyahoga county; State Highway Commissioner James R. Marker, and W. A. Stinchcomb, county engineer-elect, will facilitate arrangements to make the occasion one of real interest.

Automobile tours will be run over the oldest of the thousand miles of city streets and country roads which have given Cleveland and Cuyahoga county a wide name for permanent street and road construction.

At a dinner on the evening of the 17th the occasion will be made enjoyable with informal talks on street and road building. Headquarters will be at the Statler hotel.

Officers of the National Paving Brick Manufacturers' Association are: Charles J. Deckman, Cleveland, president; Will P. Blair, Cleveland, secretary; C. C. Barr, Streator, Ill., treasurer.

LOUISVILLE BRICK NOTES.

Louisville, Ky., Aug. 18.—The Louisville Brick Company has been handling enough business to keep things moving, although the demand has been slow, as with all other manufacturers of brick and other building products in Louisville during the current summer. A shipment of a carload of building brick to Eminence, Ky., last week was one of the best orders filled recently by the company. It is supplying the brick used by one of the busiest of the local contractors, however, in lining the cellars of the small frame houses in which he specializes. This business will amount to about 40,000 brick during the season, and helps to fill out during the dull period.

Owen Tyler, the Louisville agent for the Hydraulic Pressed Brick Company's Hytex bricks, has been handling a good grist of orders for this beautiful and popular building material. Among the houses in which Hytex face brick has been furnished recently by Owen Tyler are a home built on Bonnycastle avenue, in the Highlands, by Hieatt Brothers; another, designed by Hugh L. Nevin, the architect, for W. O. Robertson, in the same neighborhood, a steel-gray brick being used; the handsome residence of W. A. Guthrie, at Shelbyville, Ky., built by Gruber & Doss; 25,000 pink granite brick for the People's Bank building, at LaGrange, Ky., built by P. M. Cox, of O'Bannon; 10,000 for the David Downs residence, at Shelbyville, Ky.; and 25,000 for the Andrew Edinger residence in Louisville. A store front at Mt. Vernon, Ky., was also built of Hytex brick, shipped on Mr. Tyler's order. The Tyler office, in fact, remarks on the relatively large number of handsome and substantial residences being built throughout Kentucky, as evidenced by the order book from which the jobs referred to were noted.

For the second time within a couple of months fire has badly damaged the former Whittet brick plant at Edgerton, Wis. The main portion of the plant was destroyed by the first fire, but the last blaze burned only the upper portion of the main building. The state fire marshal is making an investigation, in the belief that both fires were of incendiary origin. The plant and brick yards were sold some time ago by L. C. Whittet to the Young & Schaller Company.

The Toronto Fire Clay Co., of Toronto, Ohio, which produces a fine flashed building brick, is contemplating electrifying its entire plant.

MANUFACTURE OF PAVING BRICK FROM FURNACE SLAG.

An extensive industry is being developed in the north of England, at Middlesborough, based upon the utilization of blast-furnace slag. Several companies are now engaged in the work and are apparently very successful both as to results obtained from the brick as well as commercially. The method pursued in the manufacture of these bricks is as follows:

A suitable manufacturing site is selected near the blast furnaces which are to supply the slag, this slag being connected by an industrial railway upon which the molten slag is carried from the furnace to the molding machine. The latter consists of a metal wheel which may be of any suitable diameter, but which in the case examined was approximately 30 feet, this wheel being supported upon a vertical shaft. The spokes of the wheel are made of round rods and the construction of the wheel itself is quite similar to the wire-spoked wheel used for vehicles. The metal rim upon which the molds are bolted is approximately three-fourths inch thick and 6 inches wide. In the plant examined this wheel carried 120 molds 9 inches long, 3½ inches thick, and 4 inches deep, which is the standard size for paving brick. A variety of other molds are used, but the bulk of the work is of the paving-brick size. The molds are made of two pieces, the front end or right side being an arm in one piece which is bolted to the rim of the wheel, while the left side, back end and bottom is another piece. The latter is hinged to the part which is secured to the rim of the wheel and held for casting purposes by a catch on the front end of the stationary piece. On the right side of the mold is cast a lip which assists the operator in more readily striking the mold when pouring the hot slag. Before casting the molds are dusted with a powder, the appearance of which would indicate it to be Portland cement.

Molding and Annealing.

The car which carries the slag is of plate steel with a firebrick lining, the top being covered over with a removable cap, in the center of which is a hole approximately 18 inches in diameter, through which the slag is poured when the car is filled at the furnace. At the bottom of this car is a tap similar to those used upon blast furnaces. The car of molten slag is run alongside the wheel, the trough to the tap extending over the molds; the clay plug in the tap is knocked out and the molten slag runs into the mold. As soon as it is filled an operator, by means of a handwheel mounted upon a sheet-steel heat deflector and connected through rods and miter gears to the center of the molding wheel, turns the latter so that the next mold comes under the flow of hot slag, and so on until all the molds are filled. By the time the wheel has made a quarter revolution the cast brick have sufficiently cooled so that they may be dropped out of the molds by knocking off the catch which holds the bottom in place.

As soon as they have dropped to the ground they are taken by laborers to the annealing furnaces, into which they are thrown in a promiscuous heap. These furnaces, of which there were six in the plant examined, held approximately 1,100 brick at one charge. The heat retained in the brick when they are thrown into the furnace, together with a very small amount of fuel, again brings them to a cherry red, and as soon as the furnace has been filled it is closed and allowed to cool gradually, 24 hours usually being required before the bricks are removed.

The capacity of the slag car is approximately 3½ tons, from which 360 to 400 paving bricks are made. The bricks, when cleaned up, having all of the rough corners knocked off which have been left in the process of casting, weigh about 14 pounds each. These bricks are proving very efficient for street paving and are being exported to the United States, Canada and many other foreign countries.

The Clark Pressed Brick Company, Malvern, Ark., is completing the construction of a Raymond producer, gas fired, continuous brick kiln, and made a trial burning a few days ago. This company is putting in improvements to cost about \$125,000 when completed. The brick will be burned with gas produced at the kiln from coal and it is expected that 65,000 brick will be produced daily.

The Van Briggie pottery plant has been purchased by the new Van Briggie Tile & Pottery Co., recently incorporated at Colorado Springs, Colo. The new concern is capitalized at \$50,000 and the directors for the first year are J. A. Hayes, Henry Russell Wray, Daniel Knowlton, S. B. Wheeler and E. D. F. Curtis. Plans are being made to double the force in the plant.

John Hyland, who formerly conducted a brick yard near Marshfield, Wis., recently died at the age of 84 years. Death was caused by old age. He is survived by one sister.

The Standard Clay Co., capital \$25,000, was incorporated at Macon, Ga., July 25. The incorporators are C. C. Williams and A. L. Williams.

The Woodlawn Clay Co., Woodlawn, Ill., contemplates enlarging its plant and has filed a deed for \$50,000 for that purpose. Two more kilns will probably be added.

The Iola Brick Company, Iola, Kan., has equipped its plant to burn coal. Fifty men will be employed, 50,000 brick turned out daily and the yearly payroll will be \$30,000.

H. H. Hamerton, of East Liverpool, Ohio, is contemplating the construction of a pottery near Mobile, Ala. He has secured an option on 640 acres from the Alabama Farms Co.

A dividend of two and one-half per cent has been declared by the Illinois Brick Co. for the six months' period just passed. A two per cent dividend was declared six months ago.

The Arkadelphia Brick Company, Arkadelphia, Ark., has ordered new machinery and is otherwise equipping its plant in an up-to-date manner, with the expectation of resuming business on a larger scale.

The Bellefield Co. has bought from the Keystone National Bank, of Pittsburgh, Pa., 143 acres of Blairsville intersection on the main line of the P. R. R. for \$35,000. This price includes a modern equipped brick-making plant.

The South Park Sewer Pipe and Drain Tile Co., South Park, Ohio, has been incorporated to manufacture various clay products. The capital stock is \$20,000 and the incorporators are Ernest Finch, Philip Finch, J. F. Claynick, Mary Jane Finch and A. A. Thorn.

The Acme Press Brick Company, Denton, Texas, is making several thousand dollars' worth of improvements at its plant, and when completed the capacity will be increased from 35,000 to 55,000 brick per day. The company will also install a steam shovel for digging the brick clay.

The National Sewer Pipe Company, Webster City, Ia., said to be one of the largest institutions of its kind in the United States, and whose plant has been under construction for the past year, opened up the early part of July and is already turning out tile in an endeavor to keep up with their list of orders.

The Bush Clay Products Company has been incorporated. The concern has a capital stock of \$100,000 and the office of the company will be at Bush post-office, Anapra, N. M., with a branch office in El Paso, Texas. Kent G. Bush is the agent for the company. The incorporators are Grant A. Bush, El Paso, Texas, 10 shares; Kent G. Bush, Anapra, N. M., 10 shares, and William W. Littlejohn, El Paso, 10 shares.

The Vallejo Brick & Tile Company, of Vallejo, Cal., which has been trying to produce paving brick for several years, has turned out a lot that shows only 11 per cent loss in the rattler and shows up well in other respects, which leads the company to believe that it has reached a solution of its problems in this direction. The company is now working on the introduction in this market of a new dark red dry-pressed brick.

The New Mexico Fire Brick Company, Gallup, N. M., is rapidly whipping their plant in shape to do an immense business in the fire brick line in the near future. They have just completed two great brick kilns with a capacity of about 60,000 each. The company has a force of about thirty men at work seven days in the week and are figuring on putting in a night shift with an equal number of men. A big double compartment shaft is in the course of construction now and is down a good depth.

The city of San Francisco is now laying the first block of brick pavement to be laid by the city. This block stands as heavy traffic as any in San Francisco, and the success of brick under these conditions will probably give it a permanent foothold in this market. The material, which was purchased from the Denny-Renton Clay & Coal Company, of Seattle, Wash., is of course being laid on a good concrete foundation, and efforts are being made to have all pipe work, track repairs, etc., completed before the pavement is put down, so as to give it a fair chance.



NEW LAW REQUIRES INSPECTION OF GYPSUM MINES.

The new state law providing state inspection for gypsum mines became effective July 4 in the state of Iowa and inspectors are expected to make their initial tours of the gypsum works soon.

The new law provides that owners of gypsum mines operated by shaft or having a draft opening, in which more than five men are employed, shall maintain two mine openings, provide ventilation and keep the mine and vicinity free of combustible materials.

That one year may be given mine operators to make the change, but that not more than twenty miners shall be employed in any mine which does not comply with the law.

That means of communication shall be established between the bottom of the shaft and the top, that safety devices shall be attached to hoisting apparatus, that only competent and sober engineers shall be employed, that no more than ten persons shall ride in the cage at once and that plenty of safety props shall be kept on hand.

That fatal accidents shall be reported to the county coroner.

That the owners shall furnish to the state mine inspector complete maps of their mines.

LOUISVILLE PLASTER NEWS.

Louisville, Ky., Aug. 18.—James M. Hessing and the Acme Cement Company, of St. Louis, Mo., have filed suits against the Louisville Y. M. C. A. for sums aggregating \$3,289.03, claiming liens on the magnificent new building of the association, which is just being completed. The petitions claim sub-contracts with the Wells Brothers Company, of Chicago, the general contractors. These sub-contracts are alleged to have been made with the Southern Wall Plaster Company, of Louisville, a concern which was adjudicated a bankrupt about a month ago at Louisville, the contracts being completed by the plaintiffs in the two suits. The matter will probably be adjusted before the cases come to trial, as there is said to be no question about the matter, the only difficulty being that the association has had trouble in collecting some of the subscriptions upon the faith of which the building was constructed.

Extra teams have been put to work by the Kentucky Wall Plaster Company, which is handling an array of residence work which belies reports circulated in some quarters. The company has had no trouble in keeping busy, though the past two months have been a little below what might reasonably have been expected. The worst seems to be over, and business men generally are regaining their confidence. There has been too much politics in the building trades, and members have paid too much attention to what was happening to the tariff. This is in spite of the general inclination to let politics alone. The advent of Wilson created a good deal of concern in Louisville building circles. That gentleman has been in office several months and wall plaster men and others are still finding their daily bread and butter without too great a hunt. The present sentiment, therefore, is to let Wilson take care of his job, while local wall plaster men handle theirs to the best of their ability.

We are advised by the Kelly Plaster Company, Sandusky, Ohio, that stories have been circulated to the effect that they were not running their plant or were liable to close down at any time on account of water. In connection with this they stated that these stories are unfounded and also that their pumping machinery is capable of handling five times the amount of water with which they have to contend, having a triplicate system, and that there is absolutely no chance for their being held up on account of water trouble. They have put in additional grinding machinery and a third kettle, and are running to the full capacity of their plant at the present time.

The Wheeling Wall Plaster Company, of Wheeling, W. Va., filed a new agreement recently and increased its authorized capital from \$50,000 to \$150,000. The new agreement gives the corporation greater latitude.

PLASTER MILL IS TO RESUME WORK.

After an idleness extending over a period of a year or more the Hudson River Plaster Works at Roseton, N. Y., will resume operations. It is said that the material which the banks in that neighborhood yield is of a superior quality.

A force of men has been set to work on the plant thoroughly overhauling the machinery, which is said to be of the best, and otherwise placing the plant in shape for immediate operation, and it is expected that within a week actual manufacturing on a much larger scale than ever will commence. The material manufactured is dry mortar and the quality which will be produced from this factory is said to have a ready market.

P. J. Lynch, of Haverstraw, is deeply interested in the plant and is working jointly with Mr. Larity in furthering the interests of the concern.

Application has been made to the West Shore Railroad Company for a switch which will extend from the main tracks to the plant, which the railroad people have, it is said, agreed to install.

GYPSUM TILE ON THE PACIFIC COAST.

Out in Los Angeles gypsum hollow tile for inside partition work is receiving marked attention from architects and builders, as well as everywhere else. A tryout was given the tile in the Clark Hotel, of that city, and it was estimated that a saving of 30 per cent was effected over terra cotta, as well as a substantial decrease in the weight of the building proper.

A trial was given gypsum hollow tile as a non-conductor of heat in the Trinity auditorium of Los Angeles. The tile was used in the construction of the ceiling of the engine room, which was located directly under the cement floor of the auditorium. A temperature of 1,800 degrees was attained within the inside of the engine room while outside of the 3-inch wall the temperature was but 105 degrees.

PRODUCTION OF MORTAR COLORS.

The production of mortar colors reported to the Survey in 1912 was 9,272 short tons, valued at \$87,595, an increase of 1,350 tons in quantity and of \$11,078 in value as compared with 1911. The average price per ton was \$9.45 in 1912, as compared with \$9.66 in 1911. The material entered the market first in the dry ground condition, for which the prices are given.

In the following table is given the production of mortar colors from 1909 to 1912, inclusive:

Production of mortar colors, 1909-1912, by States, in short tons.

State.	1909		1910		1911		1912	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
New York.....	5,061	\$62,539	5,200	\$60,000	2,510	\$24,723	3,300	\$39,900
Pennsylvania.....	2,060	\$1,416	2,711	\$2,732	3,505	\$3,442	2,850	\$2,837
Other States.....	2,467	\$3,779	2,009	\$2,009	2,105	\$1,867	3,122	\$3,767
Total.....	10,000	\$68,120	9,920	\$64,741	7,020	\$29,032	9,272	\$107,504

* Includes 1909 and 1910: Maryland, Ohio, and Tennessee; 1911 and 1912: Maryland and Tennessee.

A wide variety of materials is used in making mortar colors, and as marketed the colors are for the most part mixtures. Chief among the substances entering into mortar colors are iron oxide, "blue billy" or the residue from burning pyrite, considerable ground slate or shale, and some culm from coal washeries. The material is used for tinting mortar, cement, and concrete, and the colors are usually of the various shades of red, brown, purple, blue, and black.

The U. S. Gypsum Company, Chicago, Ill., has issued a 32-page booklet under the title "Gypsum as a Fireproof Material," by H. G. Perring, Assoc. M. Am. Soc. C. E. The annual fire loss is emphasized in the pamphlet and the good advantages of the use of gypsum is clearly set forth, together with a description of the gypsum industry and the use of gypsum in construction. Particular and specific information is given where gypsum has shown its fireproof qualities.

The California Gypsum Hollow Tile Company is enlarging the capacity of its plant and both its tile factories. The company's mill is located at Gypsie, 28 miles north of Mojave. A railroad is being constructed to the beds of gypsum and digging and loading machinery is being installed. The mining capacity will be 200 tons a day. The capacity of the tile factory located in Los Angeles has been increased to 10,000 feet of tile a day. A tile factory at the mill will soon have about the same output.

New Idea Plaster Board Company, Fond du Lac, Wis., has been incorporated; capital, \$5,000; incorporators, E. H. Jens, Herman Prehn, John Fellrath.

SAND-LIME BRICK

SAND-LIME BRICK ASSOCIATION.

(Meets Annually.)

Officers.

President—S. O. Goho, Harrisburg, Pa.
Vice-President—F. B. Allen, Toronto, Ont.
Secretary—W. E. Plummer, Jr., Buffalo, N. Y.
Treasurer—J. L. Jackson, Saginaw, Mich.

Executive Committee.

Canadian Division—G. Silvester, Calgary, Alta.
Western Division—E. G. Chapman, Minneapolis, Minn.
Eastern Division—W. M. Burchfield, Rochester, N. Y.
Southern Division—H. H. Tift, Tifton, Ga.
Central Division—W. L. Penfield, Willoughby, Ohio.

DEVELOPMENTS IN THE SAND-LIME BRICK INDUSTRY.

An industry, to become a great industry, must exploit its operations and scatter broadcast its beneficial features. Nothing is gained by crawling in a hole with a material so meritorious as the sand-lime brick, and the manufacturers of this product should realize the tremendous retarding influence created by a reserved attitude in regard to spreading the knowledge of its advantages as a proper building material. ROCK PRODUCTS, as have all other news mediums, has found it difficult to secure first-hand information relative to the use of sand-lime brick and the manufacture of it, simply on this account. We desire to co-operate fully with the manufacturers of the product and lend the influence of our columns in the advancement of the sand-lime brick industry, and to that end we would be glad to receive communications from manufacturers telling of their developments in this field.

Under date of July 24 Manager Andrew F. Kempf, of The Buffalo Sandstone Brick Co., Buffalo, N. Y., writes as follows concerning the operations of that progressive concern:

"Regarding the sand-lime brick industry in so far as the Buffalo market and vicinity is concerned, beg to say that the same is very good. We have had no trouble in disposing of our output and have orders booked ahead which will keep our plant running full force until January 1st, 1914, at least.

"At present we are delivering 300,000 brick for a plant to be erected by the Beaver Board Co., and, by the way, wish to say that we have furnished them all the brick for the various factories they have erected before, and they have used up to the present time about a million and a half of our brick.

"We will have a large furniture factory and a church to furnish sand-lime brick for in the course of a few months, where the owners insist on having sand-lime brick and nothing else.

"The city of Lackawanna has just completed its new city building and all common brick in this building were sand-lime.

"The outlook here in Buffalo is exceptionally good and we find that once an owner has used sand-lime brick he invariably returns for the second order when again building.

"At present we are delivering brick for 10 or 15 buildings in Buffalo, ranging from 50,000 to 200,000 brick for the different jobs, and our experience has been that better advertising is done by distributing the brick on more jobs than instead of one or two large buildings.

Allen K. Walton, president of the Hummelstown Brown-Stone Co., Waltontville, Pa., informs us in a recent communication that "up to July 1st of this season we have shipped about 4,000,000 sand-lime brick, with orders on our books for 3,000,000 more, and the plant is running full with numerous other orders in sight.

"We have shipped 500,000 brick for a public school building, for facing and backing, at Coatsville, Pa.; 650,000 for backing a school at Mt. Carmel, Pa.; 900,000 for backing for a public school building at Hershey, Pa.; 450,000 for facing and backing, public school Palmerton, Pa.; 400,000 for a warehouse at

Pottsville, Pa., used as facing and backing; 700,000 Slovak Union Buildings, Highspire, Pa.

"We are selling the run of our plant. We prefer the backing orders; they always amount to two or three times as much as the face brick orders do.

"We have several school houses in sight for facing and backing, and a number of other jobs, which would indicate that we shall be able to dispose of the output of our plant this season."

Wm. H. Crume, of the Crume Brick Co., Dayton, Ohio, under date of July 26, stated in a communication that "we are sold out for the season, or practically so, and are principally interested at present in coaxing our men to work steadily so as to get out the capacity of the factory.

"We are furnishing several good orders at present, among them being The Stivers Manual Training High School, 1,500,000; The Egly Register Co., 400,000; The National Cash Register Co., Hall of Industrial education, 450,000; The Troy Carriage Sunshade Co., 200,000; Central Theological Seminary, 300,000; Cushman Building, 200,000; Trotwood High School, 200,000; West Carrollton School, 200,000; Englewood School, 150,000."

W. E. Plummer, Jr., secretary of the Sand-Lime Brick Association, visited the new plant of the York Sand-Lime Brick Co., of Toronto, Ont., on August 13, and writes as follows: "I found they had been in operation for about 30 days. They had a fair stock of brick on hand and were beginning to fill orders. They have an installation for the production of 40,000 brick for a ten-hour run. They have two Berg four-mold presses, two wet pans, three hardening cylinders and are using pre-hydrate with silo storage.

"Their factory is practically a duplicate of the system which originated at the Buffalo Sandstone Brick Company's plant, and which is also used by the Harbour Brick Company, of Toronto, Ont. The product of their factory is good and they should be able to sell readily under normal conditions.

"The general building trade of Toronto has not been quite up to the mark for the last sixty days, but indications point to a resumption of activities in the early future.

"Mr. Johnson, the manager of the York company, expressed himself as in favor of our association work, and stated that they would become members at an early date.

"Toronto today has machinery in operation to produce upward of 200,000 sand-lime brick per day, or over 60,000,000 per year."

The Paragon Plaster Co., Syracuse, N. Y., reports that its sand-lime brick trade at the present time is very good. The company has recently furnished or is now furnishing sand-lime brick for the following jobs: Salmon River Power Co., Altmar, N. Y., about 200,000; warehouse for H. W. Balslev, Syracuse, N. Y., 350,000; The Eckels Company, office building and theater, about 300,000; the Poultry Building at the state fair grounds, about 250,000, this being the third state fair building that the company has furnished sand-lime brick for; Dey Bros. building, Syracuse, just completed, 500,000. W. K. Squier is general manager, secretary and treasurer of The Paragon Plaster Co.

E. G. Chapman, secretary of the Belt Line Brick Co., Minneapolis, Minn., in a recent interview stated that "the demand for brick of all kinds in this market this season has been very good and we have had our full share of the business; in fact, the demand during June was more than we could supply and we were obliged to refuse a number of orders. Among the jobs we have supplied are the following: Webster Mfg. Co., 625,000; Maxda Lamp Co. Building, a branch of the National Lamp Co., 1,250,000; Progressive Shoe Machine Co., 350,000; Mattison Transfer Co., 350,000; Union Brass & Metal Co., 200,000; Garrot Candy Co., 150,000; besides numerous store and flat buildings taking from 25,000 to 150,000 each."

John Engel & Son, of El Paso, Ill., is contemplating the erection of a sand-lime brick plant at Miami, Florida.

RANGE SAND-LIME BRICK COMPANY BUILDING NEW PLANT.

The Range Sand-Lime Brick Co., Pengilly, Minn., has been incorporated and are building a plant at that point with initial capacity of 80 to 100 thousands per day and is so constructed that 50 per cent additional capacity may be made if conditions justify it. The plant is located at Pengilly, Minn., a station on the D. M. & N. and G. N. railroads, 75 miles from Duluth, both roads having side track connections with the plant.

The property consists of 40 acres of land on which is located the sand used in the manufacture of the brick. This sand having been tested to a depth of 80 feet and all found of uniform grade and of sufficient quantity to supply needs of plant for 75 to 100 years. The capital stock of this company consists of \$75,000.00 of preferred stock, 8 per cent retirable at par after two years; \$75,000.00 of common stock.

All of the buildings are now erected and are of heavy mill construction of ample size and all on concrete foundations. The machinery is now being installed as fast as possible with view of early completion of plant. The buildings have been constructed to allow of operation night and day for 300 days of each year.

This plant will be a double unit having 300 horse power high pressure boilers, with 250 horse power Cross Compound Automatic engine, with most modern feed water heater and pumps. A large fire pump will be installed for fire protection. Two presses of 2,500 brick per hour each will be installed with two hardening cylinders of fifty thousand capacity every 24 hours.

All labor saving machinery is being installed to produce a high grade brick at the lowest possible cost. Ninety-four per cent of material contained in the brick manufactured at this plant will be taken from the land owned by this company, and six per cent of lime which will be shipped in.

The officers of this company are as follows: J. W. Bragdon, president, Minneapolis, Minn.; H. S. Lord, vice president, Carlton, Minn.; Andrew Hawkinson, treasurer, Virginia, Minn.; A. W. Kerridge, secretary, Minneapolis, Minn., and J. H. Huber, director, Pine City, Minn.

The company has a three-cent freight rate to all the Range towns, also into Duluth and Superior, making the freight \$1.35 per thousand to all of the above points.

The locating of the plant of the Range Sand-Lime Brick Company on the Iron Range was decided after a careful canvass of all the cities and towns of the range to determine the demand for building material, and it was found that brick was in great demand and selling at from \$8.00 to \$9.50 per thousand in all the range cities and towns.

While the company is capitalized for \$75,000.00, it is the agreement of the company with all stockholders to only sell such an amount of stock as to build the plant and commence operation, which will cost about \$50,000.00, sixty per cent of which has already been subscribed and every dollar applied in the construction.

R. L. Hall, of Pengilly, Calumet postoffice, Minn., has charge of the construction of the plant, and under his able supervision completion of it is drawing near with remarkable facility.

The Lightman-Sewell Stone & Pulverizing Co., of Nashville, Tenn., has been incorporated to manufacture and deal in crushed limestone. The capital stock is \$100,000 and the incorporators are: Jos. Lightman, W. H. Sewell, H. L. Sperry, A. E. Godwin and Clyde Shropshire.

The Natomas Consolidated, of California, one of the largest producers of crushed rock in the state, recently installed at its plant at Fair Oaks, Cal., an addition to its screening equipment, part of which was a screen 6 ft. in diameter, 24 ft. long, weighing 22 tons. It is equipped with cast steel ends, removable trunnion rings, and a hardened thrust roller. The screen was furnished by the Meese & Gottfried Company, San Francisco.

The public service commission of Indiana has reached an agreement with the shippers and carriers of the state relative to the rate to be charged on ground limestone, now being used extensively in the state for fertilizer purposes. The commission had originally cut the rates considerably and the railroads protested. The rates now are midway between the original rates drawn up by the commission and those advocated by the railroads. The new rates are approximately 55 per cent of the rate on sixth class freight.

Hale Roberts, president and general manager of the Ellsworth Stone Company, Iowa Falls, Iowa, last week bought a forty-five acre tract of land from John H. Shriner, at Alden, and will use the land as a stone quarry. It is the purpose of President Roberts to build a large modern stone crusher at that place and have it in readiness by another year. The plant will be of sufficient size that a steam shovel will be used in the quarry to load cars. Mr. Roberts has not definitely decided at this time just how he will handle the plant at Alden. He may organize a new stock company or consolidate it and handle same under the management of the Ellsworth Stone Company of this city. He recently stated in a communication to ROCK PRODUCTS that he would like to interest some large Eastern plant to remove to Iowa Falls and operate the new quarry on a tonnage basis.

HEART TO HEART TALKS By An Observer.

SHOW YOUR GOODS.

Mr. Charles Turner sat in his private office and overheard his man Darkin say to a customer: "There, Mr. Perkins, and I trust our price is such as will secure us the order."

"That depends. You know money talks."

"Yes, but I am quite confident that our prices are right."

Mr. Turner came out of his office quickly. "One moment, Mr. Perkins," said he, "I want you to go down in the yard with me and look at some brick we have just gotten in, and there are one or two other items on your bill that there is quite a difference in if the dealer is not particular in his buying."

"Very well," said Mr. Perkins, evidently pleased with the attention Mr. Turner was paying him. "I have but little time to spare but I will be pleased to see what you have."

Mr. Turner led the way to the brick shed and picking up some hard brick showed Mr. Perkins how he could tell the difference between hard and soft brick by the color, also calling attention to the fact that the brick first shown were perfect in shape, and still further that they were straight, and by comparing them with some face brick they showed up pretty well as to smoothness. Then he said: "The siding Mr. Darkin figured on, I noticed, was sugar pine. Let me show you the quality of the stock."

He took him to a section of the shed where was piled a fresh lot of sugar pine siding, opened up a few of the bundles and called particular attention to the quality of the stock and the smooth working.

Mr. Perkins was pleased, and fully as much pleased by the attention as by the stock, for in reality he did not know much about brick or lumber. Mr. Turner kept him looking at the different kinds of stock until he felt obliged to excuse himself in order to see the other dealers. Darkin, the yard man, had followed the other two and stood in open mouthed wonderment when Mr. Turner was talking about the stock.

After Mr. Perkins had gone Mr. Turner turned to Darkin and said:

"How many times have I told you you should learn to be a salesman instead of an order taker? You are not a salesman when you are simply answering a man's questions. You should learn to tell a possible customer something and show your goods. Can you understand that?"

"That may be all right, Mr. Turner, if you were selling a cow or a horse, but the way I look at it a brick is a brick, and every dealer in town has just as good brick as we have, and most likely burned in the same kiln."

"That may be true, but I am gambling on two things about the brick. One is that the people Mr. Perkins sees at the other yards are as poor salesmen as you and will not think to show him the brick, and the other is I know he will appreciate the attention I have shown him."

"Now, about the sugar pine siding; we have the only lot of sugar pine siding in town. It did not cost any more than the last lot we bought in Spokane and is no better so far as I know, but it looks fine and when I bought it I felt sure if it was pushed to the front it would help us to get business. But you cannot expect to sell goods if you do not show them, and it does not make so much difference whether it is cows, horses, brick or lumber."

Three days later Mr. Perkins came back. "You fellows figure pretty close in this town," said he, "but you were the highest of the lot by twenty dollars."

"Well," said Mr. Turner, "but how about the material; did you find anything as nice as our sugar pine siding?"

"No, I will have to own I did not, and those brick of yours are surely nice and I have made up my mind to give you the order."

The order was booked and Mr. Perkins went away happy.

"Now, Darkin, what have you got to say?" said Mr. Turner.

"Not a thing, only that you fooled Perkins on the brick. They are not a bit better than he could have gotten at Carlton's or Moore's."

"Perhaps not, but there is another point in sales-

manship which comes in there. Don't you remember how particular I always am to have the brick piled up so they will show to the best advantage, and don't you know there is not a dealer in town who takes as much pains to have his yard look well as I do?"

"You are right about that, Mr. Turner, but I have always thought you took too much pains to keep the yard looking like a front door yard. When I worked for old man Preston he believed in dumping the stuff the easiest way we could so, as to save labor."

"That is all right, Darkin. Now let's do a little figuring. Who does the most business in the course of a year, old man Preston or us?"

"We do, of course."

"Do we keep any more help, take it the year through, than Preston does?"

"I guess you have me there. In fact, Preston usually has one more man than we do, but we have to work every minute of the time here."

"That is exactly what you are paid for, Darkin. I believe in salesmanship and in keeping a neat yard so as to have things look inviting to customers. Showing the goods you have to sell and being attentive to customers is all a part of good salesmanship. I am paying you the same as Preston did and giving you a percentage of the profits. Don't you think it would be a good idea to corral a few more twenty dollar pieces so as to have your percentage a little larger at the end of the year?"

"Say, Mr. Turner, why didn't you explain this to me before? I haven't been with you long, but I am going to sell the next guy that comes here if I have to polish some bricks to show just what could be done."

PUTTING ON DOG.

To have system in one's business is something to be desired. To see that no time is wasted either by the head of the company or any of the employees is something to be proud of providing you succeed in doing it.

But the man who has a second-class set of offices in a cheap building, and surrounds himself with a barrier so that if a stranger wants to see him he must tell his name and business, is putting on "dog."

Time is worth a lot to us all and there is no one who appreciates the fact more than I do, but there is something to be considered as well as time. There is the consideration we owe our fellow man, and more than this is the impression left with the man who is obliged to climb over a very high wall to interview a very small man.

Just as I was leaving the City of Mexico one morning a man I knew very well came to me and asked me if I would see his brother in Chicago and explain a proposition to him that was very much to his interest to know. I could explain it because I was quite familiar with the proposition, and far better than it could be written.

I only had a short time in Chicago, but went at once to the gentleman's office. I had no card that would mean anything to him so I simply told the office boy that I wanted to see the proprietor on important business. I waited all of half an hour and then told the boy I could not wait much longer. He went into the sanctum sanctorum, and coming out said: "Mr. Goldman wants to know who you are and what your business is."

"Tell him," said I, "that I am the president of the United States and was about to offer him a place in my cabinet, but I have decided, as he is so busy, that I will have to beg someone else to take it."

Perhaps I would have felt different had I not waited so long, for one thing, and for another the partition to the private office only went about eight feet high and I could hear him swapping yarns with a congenial companion all the time.

When a man cannot turn a book agent down in a minute, and at the same time make him feel that he has met a gentleman, he is not altogether onto his job.

What puzzles me is, there are so-called business men who do the buying for their own concerns, and who have men out themselves, who play this same trick of making it as hard as possible for anyone to get at them, and then they will sit back in their office chair and tell their salesmen how to approach a prospective customer.

I am not writing about the man whose business is so large that he has departments, with department heads. That is another proposition, but the man in a small business, who tries to run his business as the United States Steel Corporation, and do it all himself, is simply putting on dog.

There used to be a company in San Francisco that I called on once or twice a year for five years,

but I could never secure an interview with the man who had charge of the business I was interested in. I always called, for I knew he was putting on dog, and it amused me.

Finally I decided I would see him just once and give him a piece of my mind and then let him alone. I sent in my card and asked the young lady to tell him that I must see him for just two minutes. He came out and the first question I asked him was, "Do you have men on the road selling your goods?"

"Yes, sir, I do. What about it?"

Then I gave it to him straight from the shoulder in language that would not all look well in print. As soon as he got a chance he said:

"There is no use in talking to me now. This concern is in the hands of a receiver."

"Then," said I, "I want to congratulate you if you have kept this concern out of the hands of a receiver for five years with your ideas of how you should treat people who call on you. You certainly are a peach."

The idea of a man who has salesmen on the road, and who must desire consideration for them, putting up the front that some so-called business men do when a salesman appears at their office, is beyond my comprehension.

"Putting on Dog" may make a man feel his own importance, but in order to do it successfully one needs to be independent of his fellow man, and I have yet to find the man who is.

G. C. Skinner and O. L. Larsen have leased a site on the river front at Independence, Ore., and will build a large gravel bunker, with drag shovel and screens.

CLASSIFIED ADVERTISEMENTS

Advertisements will be inserted in this section at the following rates:

For one insertion.....25 cents a line
For two insertions.....45 cents a line
For three insertions.....60 cents a line

Eight words of ordinary length make one line.
Headings count as two lines.
No display except the headings can be admitted.

Remittances should accompany the order. No extra charges for copy of paper containing the advertisement.

EMPLOYEES WANTED

WANTED—Competent and educated man as general superintendent at natural cement plant. Must have a knowledge of machinery and work connected with the operation of quarries. Continued employment offered at good salary, and opportunity of advancement. Address MANKATO CEMENT WORKS, Mankato, Minn.

EMPLOYMENT WANTED

Experienced young crushed stone expert of good address wants position as manager or superintendent of larger plant. I can get results. Let me put your plant on a paying basis which my varied experience enables me to do, very readily. Address Box 936, care ROCK PRODUCTS.

Wanted—Position as superintendent of large lime and quarry plant. Long experience. Best references. Address Expert, care ROCK PRODUCTS.

WANTED—Position as superintendent of quarry. Thoroughly familiar with "big blast shots." Fourteen years' experience. Address Live Wire, care ROCK PRODUCTS.

POSITION AS SUPERINTENDENT.

Position wanted as superintendent of lime works, by a hustler of fifteen years' experience, capable of taking full charge of plant, including quarry, and can be depended on at all times to keep things up to the minute and in working order. Can furnish best of references from former employers and produce results. I am thoroughly familiar with Gas Producer and direct fire kilns. Also Hydrate Mill and Stone Crusher. Address Results, care ROCK PRODUCTS.

PLANT FOR SALE

FOR SALE OR LEASE.

60 Acre tract limestone, with completely equipped crushed stone plant, 500 tons capacity; lime kilns, store and tenement houses. Excellent demand for output. Located on main line of a good railroad in Tennessee. Address Box 529, care ROCK PRODUCTS.

LIME PLANT, quarry and equipment for sale. Practically new, good working order. Exceptional bargain. Cash or easy terms. GEO. W. PLUMB, Readsboro, Vt.

FOR SALE—A concrete block plant at East Peoria, Ill. A splendid opportunity for a young industrious man to start business. For particulars address
E. LEUTHOLD, East Peoria, Ill.

For Sale—Complete crushing plant and machinery, in good condition, capable of producing 700 tons crushed stone per day, with 13 acres of available stone, with 40 foot face adjoining. Located near Olympia Mills, Columbia, S. C. Good chance for man who knows the business. For particulars address Carolina Portland Cement Company, Charleston, S. C.

BUSINESS OPPORTUNITIES

BLACKSMITHS—Here is your opportunity to be an expert blacksmith without help as life is short. Try Toy's Modern Methods doing hard jobs easy. Forging and welding all kinds of steel solid, and tempering and hardening all tools to a standard by colored charts. This is real information, not theory. All for one dollar.

ALSO

VALUABLE FERTILIZER FACTS for Lime Manufacturers, enabling you to sell your lime either Magneslan or Calcium to greater advantage. You can use these in your adverst to great advantage. My price for these facts and formulas is \$5.00. SPECIAL will send Modern Methods in Blacksmithing & Fertilizer Facts for \$5.00.

Address R. M. GLACKEN, Chemist, Baltimore, Md.

WANTED—One or two partners in the concrete products business—have a well-established plant here. Address P. O. Box 683, Billings, Mont.

I have a large tract of sand land for sale. Finest proposition in the world. Can be loaded by gravity. Address T. J. Nertney, Ottawa, Ill.

PATENTS

Patents—Patents and trade-marks secured. Inventions examined. Patents investigated. Patent litigation. A. S. Pattison, 100 Barrister Bldg., Washington, D. C.

MACHINERY FOR SALE

FOR SALE—Two new 10 cu. ft. United concrete mixers, complete, with Duke steam engine and tipping engine. Bargain. Address

THE STANDARD MACHINERY CO., Mystic Conn.

124 different size culvert forms outfit for \$100. Good as new. Manufacturers charge \$2,000 for same capacity. Write quick. Harry Frick, Line Lexington, Pa.

FOR SALE.

Four-36" Vertical Sturtevant Emery Mills with extra stones. Will sell at a bargain. Write KELLY PLASTER Co., Sandusky, Ohio.

FOR SALE—Two number 8 Krupp ball mills in first-class condition. These with other material to be disposed of on account of change of equipment. Write SECURITY CEMENT & LIME CO., Hagerstown, Md.

MACHINERY WANTED

TO MANUFACTURERS OF CEMENT SHINGLE MACHINES: We are in the market for machines for this kind of product. J. A. ROSS & COMPANY, 4541-61 Armitage Av., Chicago, Ill.

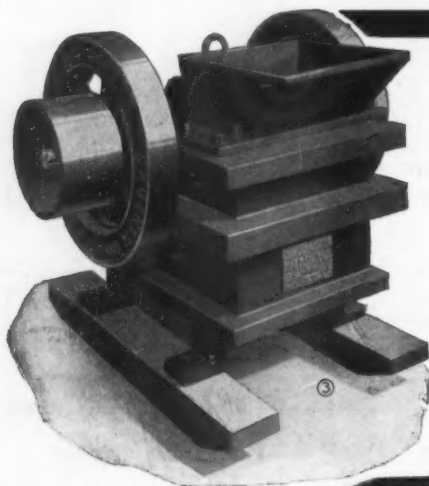
CULVERTS
CONCRETE
CULVERT FORM (Steel)
ADJUSTABLE 15 SIZES \$47
CATALOGUE FREE
FRANCIS MACHINERY CO., 4 Market St., St. Louis, Mo.

MILLIONS

Can Be Made by the Purchase of an Austrian Invention of

Artificial Marble

Hardy against frost and weather; no Gypsum - Marble. Price for America \$300,000. Inquiries to be addressed "Kunstmarmor" P. F. 2546 to Rudolf Mosse, Prag, Graben 6, Bohemia.



A LOSS OF \$12,500.00 MONTHLY

50 Crushers Waiting to be Shipped—Each Could Easily Make \$10.00 Clear Per Day.

The Universal and Eureka Crushers have made their reputation. Everybody knows these Crushers as *money makers*. Thousands are in operation daily. We are making **25 sizes** and we can give you just what you want. You get more for your money than other manufacturers are offering. It is up to you to let us know what you wish to do. We say frankly to you, we will sell you a crusher if you will give us an *opportunity* to make you our *proposition*.

Crushers, Elevators, Screens and Conveyors—Our Specialty

Write today for prices and folder No. 10—Address

UNIVERSAL CRUSHER CO., Cedar Rapids, Iowa, U. S. A.
230, Bave.

BARGAINS

30—1½ yd. End Dump Cars, 30 in. gauge, practically new, each \$30.00.

Gates No. 2 Gyratory Crusher, "D"—shop No. 6015—r. h. d. two arm spider—manganese head and concave. \$300

Gates No. 5 Crusher; two arm spider, rear drive (rebuilt B)—low price.

Heyward one yard clam shell bucket, \$300.

Also cableway hoists, screens, dinky locomotives, shovels, relaying rails, etc.

Willis Shaw Mach. Co.

39 S. La Salle St., Chicago, Ill.

FOR SALE CHEAP

Two-Yard Concrete Mixer

"Hadsel" concrete mixer with engine, mounted on channels, in excellent condition.

Also one ½-yard engine and boiler, same make. Several ¼-yard Ransome Mixers. All ready for service.

Marine Metal & Supply Co.

168 South Street

New York City

Shearer & Mayer Drag-line Cableway Excavator

adapted for digging, conveying and elevating material from wet or dry pits.

SAUERMAN BROS.

ENGINEERS
and AGENTS

1140 MONADNOCK
BLOCK, CHICAGO



The DEALER is offered
CALVERT MORTAR COLOR
for its TRUE WORTH

To Himself, the Builder, the Owner and the Public
By its only maker

JAS. B. MACNEAL & CO.
DEPT. R.

Warner & Wooster Sts., BALTIMORE, MD.
A Trial WILL convince you

Anchor Brand Colors

**For Mortar, Cement and Brick
Brown, Black, Red and Buff
Strongest and Most Durable**

Manufactured by **C. K. Williams & Co.**
Correspondence Solicited **Easton, Pa., U. S. A.**

AIR COMPRESSOR

For Sale—One Ing.-Ser. Class G2 Duplex Steam and Cross Compound Air. Size 12 x 11½ and 18½ x 14. Capacity, 638 ft. to 100 lbs. air pressure. Code name "Georgiana." Little used, fine condition; immediate shipment, must move; low price.

If you need Hoists, Cars, Derricks, Pumps, Locomotive Cranes, Steam Shovels, etc., confer with me.

WILLIS SHAW

1216 PEOPLES GAS BLDG. CHICAGO, ILL.

Tell 'em you saw it in ROCK PRODUCTS

W. J. LEWIS & CO.**Consulting Geologists**

Quarry Projects and Management a Specialty.
Exploration Reports—Estimation Reports.
Economic and Efficient Operation Reports.

1312 First National Bank Building, Chicago

G. P. GRIMSLEY, Ph. D.
MINING AND CONSULTING GEOLOGIST

Formerly Ass't. State Geologist W. Va.; Formerly Geologist on Ohio, Michigan and Kansas Geological Surveys; Ex-Manager National Limestone Company. Consulting Geologist National Limestone Company.

Examination, Reports, Consultation on development
Limestone, Clay, Gypsum and Coal.

Room 1105 Wyandotte Bld'g. : Columbus, Ohio

Ferguson & Lange Foundry Co.

—CHICAGO—

Specialists in Hard Iron and Chilled Castings—
Brick Yard Rolls—Hard Liners, etc. Gray
Iron Castings, all kinds. Small Car Wheels.



Stained with Cabot's Shingle Stains and lined with
Cabot's Sheathing Quilt. Robert W. Spencer, Jr.,
Architect, Chicago

**Cabot's Building
Specialties**

Cresote Stains for Shingles, Siding, Clapboards, Trimmings, Boards, and all other Exterior Woodwork.

Waterproof Cement and Brick Stains for waterproofing and artistically coloring cement and brick buildings.

"Quilt" for lining houses to keep out cold or heat, for sound-deadening in floors and partitions, and for insulating cold storage and refrigerators.

Conserve Wood Preservative for preserving Posts, Planks, Sills and all other exposed timbers. **Mortar Colors, Protective Paints for Metals, Waterproofing Compounds, etc.**

SAMUEL CABOT, Inc., Mfg. Chemists
BOSTON, MASS., U. S. A.

1133 Broadway,
New York

24 West Kinzie St.
Chicago

DESIRABLE SITES

—FOR—

Cement and Lime Plants

Many valuable Cement and Limestone deposits adjacent to good transportation facilities, near to cheap fuel and where labor is plentiful are offered in several of the Southeastern states along the

**Southern
Railway System**

The local demand for agricultural Lime and the rapid advancement of concrete construction in the Southeastern states have created excellent markets for the output of many plants.

Our free services are at your command in aiding you find a favorable location.

M. V. RICHARDS, Land and Industrial Agt.
Room 371, Southern Railway
WASHINGTON, D. C.

MARTIN STONE CRUSHER AND GRINDER

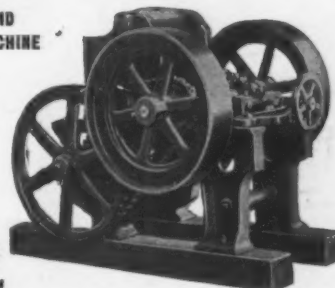
BUILT
IN 4
SIZES

IS A SAND
MAKING MACHINE

Maximum
Capacity
25 tons
Daily

Net Price

\$135



No. 2 Receiving Opening 12x5 inches
Weight 1,800 lbs. 3 Horse Power

Guaranteed and sent on ten days' working trial, **send in your Order** and pay after you have tried it out.

Limestone, Lime, Fieldstone, Flint, Marble, Granite, Sandstone, Oyster shells, Rock, Etc., can be reduced at one operation to the fineness of sand, or to $\frac{1}{2}$ ", $\frac{3}{4}$ ", 1 " or $1\frac{1}{2}$ " for roads, concrete materials and fertilizing purposes.

H. MARTIN BRICK MACHINE MFG. CO.
Lancaster, Pa., U. S. A.

Crushers built in larger sizes also



Loading a 5-ton Truck in Less than Five Minutes.

**THE
LINK-BELT PORTABLE
WAGON LOADER**

**LOADS SAND, STONE,
GRAVEL, COAL, ETC.,**

more quickly and economically than any other low-first-cost method. Handles 40 yards of stone an hour, or a ton of coal or similar material a minute. Saves 5 to 10 cents a ton in loading.

The scarcity of efficient common labor makes the wagon loader a most profitable investment for contractors and dealers. It solves the labor problem by giving increased capacity with fewer men. It is always ready for work—never "loafs" nor "goes on a strike."

If you load loose material in quantities, you owe it to yourself to investigate this Link-Belt Wagon Loader.

Price, booklets, records of performance, testimonials, facts and figures upon request. Simply return the coupon.

LINK-BELT COMPANY,
Nictown, Philadelphia, Penna.

Send us price, booklet and full particulars regarding the Link-Belt Portable Wagon Loader.

We load about tons
..... yards of a day

from to

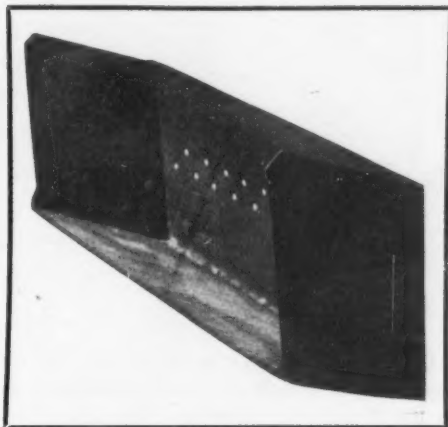
(Name)..... 1913

(Address).....

(Town).....

(State)..... R. P.

Tell 'em you saw it in ROCK PRODUCTS



Our elevator buckets and perforated steel screens have been going all over the United States for many years, and if you haven't tried them, a good time to start is right now.

Let us quote price on your next order.

Hendrick Mfg. Co.

Carbondale, Pa.

NEW YORK OFFICE

30 Church Street

McCully Gyratory Rock Crusher



Write for Catalog
PM4-58

has Shaft suspended at point of least gyration.

Steel gears.

Removable countershaft bearing.

Drop bottom.

The simplest construction.

The greatest strength.

POWER AND MINING MACHINERY COMPANY

Cudahy (Suburb of Milwaukee), Wis., U. S. A.

District Offices: New York, Chicago, El Paso, San Francisco
Atlanta.

MD9:2

Gravel Washing Plant Owners

have reasons for buying our latest washing screens, as shown below.

Some Reasons Why

BECAUSE all the screens are driven by a single pair of gears, which reduces the power and dispenses with all the chain drives.

BECAUSE the large end of the screens do the principle work, and as the large ends have greater wearing surface and more perforations, the screens last longer and are more efficient.

BECAUSE gravel producers who have had experience are buying our screens in preference to all others.

BECAUSE we have furnished these screens in practically all the gravel producing states in the country, this spring, Illinois, Iowa, Wisconsin, Minnesota, Montana, Michigan, Indiana, Tennessee, Georgia, Texas, Ohio and Pennsylvania.

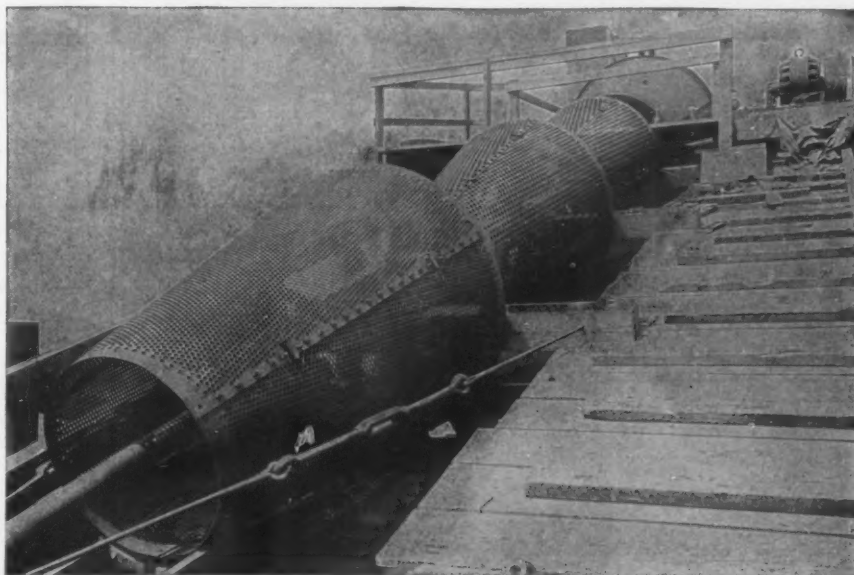
Send for Our New Catalog Entitled "Plants for Washing Sand and Gravel."

The Raymond W. Dull Company

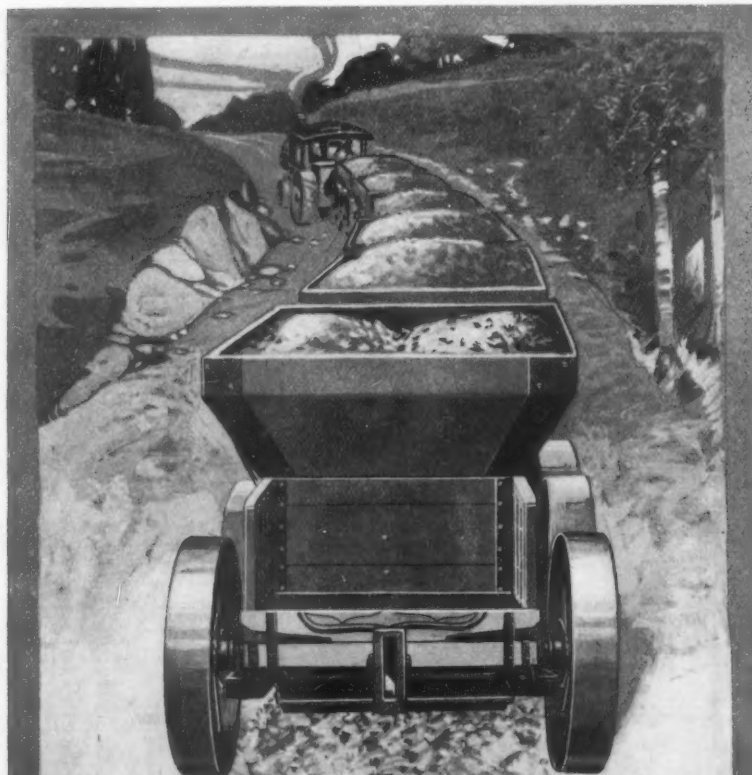
718 Chamber of Commerce Building

Chicago, Illinois

W. E. Austin Machinery Co., Southern Sales Managers, Atlanta, Ga. Francis B. Plant, Sales Engineer, Rialto Bldg., San Francisco, Cal.



Tell 'em you saw it in ROCK PRODUCTS



TROY SPREADERS

are real Spreaders. They are the only engine wagons you can buy that will spread the load to any desired depth, but can dump it all in one spot if desired.

They automatically spread the load from 2 to 18 inches deep, 5 feet wide, as smoothly and evenly as your men can do it with rakes and shovels.

TROYS are absolutely reversible. They track with the engine around any turn or into any opening. They can be backed automatically in a straight line or around a curve. And they always save from $\frac{1}{2}$ to $\frac{3}{4}$ the cost with teams.

YOU NEED OUR HAULING BOOK
A CARD BRINGS IT

The Troy Wagon Works Co.
TROY, OHIO

DISTRIBUTORS

G. C. Hodges, Brooklyn
Standard Supply & Equip. Co., Phila.
Eastern Ry. Supply Co., Baltimore
D. R. Croly, Syracuse
H. H. Hoover, Pittsburgh
W. S. Brown & Sons, Birmingham
A. Baldwin & Co., New Orleans
So. Texas Implement Co., Houston
W. M. Pattison Supply Co., Cleveland

Beall & Co., Portland
E. R. Bacon & Co., San Francisco
W. L. Cleveland & Co., Los Angeles
Landes & Co., Salt Lake City
Western Metal Mfg. Co., El Paso
N. J. Dinnen & Co., Winnipeg
Baines & Peckover, Toronto
C. Paquet & Co., Quebec
W. McNally & Co., Montreal




Send for Catalog 25

THE GENERAL CRUSHED STONE CO.,
So. Bethlehem, Pennsylvania,

have been using one of our Common Sense Elevators for six years—
capacity 400 tons an hour.

THE C. O. BARTLETT & SNOW CO. CLEVELAND OHIO



"STAG" BRAND
Manganese Steel
Castings

Edgar Allen American Manganese Steel Co.
Chicago, Ill. New Castle, Delaware

CLINTON METALLIC PAINT CO. CLINTON, N. Y.

LARGEST AND OLDEST MANUFACTURERS OF

**BRICK AND
MORTAR**

COLORING

Be sure you get the genuine with the "Little Yellow Side Label"
on each package

Let us tell you about Side-Walk Black.



YOU CAN'T FADE 'EM

There's one "best" in every line, but that is not always best for everyone concerned. In the building trades

**Ricketson's Mineral
COLORS**

are acknowledged to be the best choice for *Everybody*. Best for the architect because purest. Best for the contractor because they go farther. Best for the owner because they never change their color.

For Mortar, Brick, Cement, Stone, Etc.
Red, Brown, Buff, Purple and Black

RICKETSON MINERAL PAINT WORKS MILWAUKEE, WIS.

Red, Brown, Buff and Black



**MORTAR
COLORS**

The Strongest and
Most Economical
in the Market.



Our Metallic Paints and Mortar Colors are unsurpassed in strength, fineness, and body, durability, covering power and permanency of color. Write for samples and quotations.

CHATTANOOGA PAINT CO.
Chattanooga, Tennessee

Tell 'em you saw it in ROCK PRODUCTS



Stores of R. D. BURNETT CIGAR CO., Birmingham, Ala. Basement of this building was useless as it filled with seepage water until waterproofed with TRUS-CON WATER-PROOFING PASTE, Concentrated. It is now dry as a bone and used for cigar storage

YOUR TERRITORY MAY BE OPEN

If you are a live, active, progressive dealer, you will write to-day and secure the exclusive sale rights in your territory for

The Trus-Con Laboratories' Products

A line of the highest standard Waterproofings, Dampproofings, Concrete Coatings and Technical Paints. Selling successfully and dominating the field wherever introduced by live dealers. You want this line to make you a completely stocked dealer—the kind who can take care of big business.

TRUS-CON WATERPROOFING PASTE which is dissolved in the water used for mixing the concrete.

TRUS-CON STONETEX, a liquid cement coating for dampproofing, beautifying and protecting exterior stucco, concrete, brick and masonry surfaces of all kinds.

TRUS-CON POR-SEAL, a transparent liquid for dampproofing exterior masonry walls without changing the physical appearance and texture of the coated surface.

TRUS-CON PLASTER BOND, a bituminous dampproof coating applied to the interior of exposed walls, which furnishes a strong bond for the plaster.

TRUS-CON FOUNDATION COAT, for dampproofing foundations and underground masonry under light pressures.

TRUS-CON STONE BACKING, a black dampproof coating for treating the unexposed sides of cut stone.

TRUS-CON FLOOR ENAMEL, gives a hard enamel finish and prevents dusting of concrete floors.

TRUS-CON ASEPTICOTE, a flat, washable, sanitary finish for interior work of plaster, cement, brick, wood burlap and metal.

TRUS-CON SNO-WHITE, an enamel coating of very highest quality for finishing interior surfaces of wood, metal and plaster.

TRUS-CON INDUSTRIAL ENAMEL, a sanitary enamel of maximum light-reflecting power for finishing the interior of industrial plants.

TRUS-CON DAIRY ENAMEL, an especially formulated enamel to meet the requirements of dairymen for finishing the interiors of their dairy buildings.

TRUS-CON HOSPITAL ENAMEL, a washable aseptic enamel finish for interiors of hospitals, sanitariums and similar institutions.

TRUS-CON PACKING HOUSE ENAMEL, a high grade enamel for use under conditions characteristic of those in packing houses and similar plants.

TRUS-CON ROOF SEAL, for preserving and protecting shingle, felt and composition roofs.

TRUS-CON SHINGLE STAINS, for decoration and preservation of wood surfaces.

And Other Trus-Con Products.

Each product is made for a particular purpose and each is the best for that purpose.

Every product of the Trus-Con Laboratories has stood the actual tests of severe service, and the universal success of all these products is the best testimony as to their efficiency.

Write a detailed letter today, asking all you wish to know about the line and you will receive a detailed reply.

The Trus-Con Laboratories

1226 Trus-Con Bldg.,

Detroit, Michigan



Why not start right?

Many truck owners have not! As a result

4000
have changed to

Goodrich Wireless Truck Tires from tires they have tried and found wanting. In one month alone 478 users joined the ranks of

Satisfied Truck Operators

by substituting Goodrich Wireless Tires for other makes. Dissatisfied with continual adjustments, they wanted the most continuous service and economy of

GOODRICH WIRELESS TRUCK TIRES

Always dependable in every service. They are in use by numerous concerns—both large and small—in your own business. Write us for names of some of these users. If you are considering the use of trucks, write for our valuable

Free Handbook

"Motor Trucks of America," an authentic handbook giving the essential features of over sixty American-made trucks. Write on the business stationery of your firm for a copy.

The B.F. Goodrich Co.

Makers of Goodrich Tires
and Everything That's Best in Rubber

Factories:
Akron, Ohio



Branches in all
principal cities

There is nothing in Goodrich Advertising
that isn't in Goodrich Goods



Tell 'em you saw it in ROCK PRODUCTS

CLASSIFIED BUSINESS DIRECTORY

BAGS.

West Jersey Bag Co., The.

BAG TYERS.

Miller & Co., Clifford L.

BELTING.

American Fabric Belting Co.
Chicago Belting Co.
Imperial Belting Co.
Main Belting Co.
Stephens-Adamson Mfg. Co.
Webster Mfg. Company.
Weller Mfg. Co.

BUCKETS, DUMPING AND GRAB.

Atlas Car & Mfg. Co.
Hendrick Mfg. Co.

CABLES.

American Steel & Wire Co.
Sauerman Bros.

CASES.

Electric Locomotive and Car Co., The.

CASTINGS.

Ferguson & Lange Fdy. Co.

CEMENT BRICK MCHY.

Bartlett, C. O., & Snow Co.
Martin-Henry Brick Machine Mfg. Co.

CEMENT, HYDRAULIC.

Carolina Portland Cement Co.

CEMENT MCHY.

Allis-Chalmers Manufacturing Co.
American Pulverizer Co.
Bonnot Co., The.
Bradley Pulverizer Co.
Canada Pebble Co.
Contractors Mach. & Sup. Co.
Cummer, F. D., & Son Co.
Eberling Cement Mach. Co., The.
M. T. Hayes & Co.
Jaeger Mach. Co.
Jeffrey Manufacturing Co.
Kent Mill Co.
Miscampbell, H.
Monolithic Silo & Const. Co.
Raymond Bros. Impact Pulverizer Co.
Ruggles-Coles Eng. Co.
Smidth & Co., F. L.
Sturtevant Mill Co.
Symons Bros. Co.

CEMENT, PORTLAND.

Alpha Portland Cement Co.
Atlas Portland Cement Co.
Canada Cement Co.
Carolina Portland Cement Co.
Chicago Portland Cement Co.
Coplay Cement Mfg. Co.
Dexter Portland Cement Co.
French, Samuel H., & Co.
Kansas City Portland Cement Co.
Lehigh Portland Cement Co.
Marquette Cement Mfg. Co.
Meacham & Wright Co.
Northwestern States Portland Cement Co.
Phoenix Portland Cement Co.
Sandusky Portland Cement Co.
St. Louis Portland Cement Works.
Security Cement & Lime Co.
Union Sand & Material Co.
Universal Portland Cement Co.
Whitehall Portland Cement Mfg. Co.
Wolverine Portland Cement Co.
Woodville Lime & Cement Co., The.

CHAINS.

Columbus Chain Co., The.
Taylor-Wharton Iron & Steel Co.

CLAY PRODUCTS.

Improved Equipment Co.
Louisville Fire Brick Co.
Union Mining Co.

CLAYWORKING MCHY.

Bartlett, C. O., & Snow Co.
Cummer, F. D., & Son Co.

COMBUSTION ENGINEERS.

Improved Equipment Co.

CONCRETE BLOCK MCHY.

Francis Machinery Co.

CONCRETE MOLDS AND FORMS.

Monolithic Silo & Const. Co.
Read & Morrill, Inc.

CONCRETE MIXERS.

Jaeger Mach. Co.
Miscampbell, H.
Standard Scale & Supply Co.

COLORINGS, BRICK AND MORTAR

Chattanooga Paint Co.
Clinton Metallic Paint Co.
Macneal, James B., & Co.
Ricketson Mineral Paint Works.
Williams, C. K., & Co.

CONCRETE REINFORCEMENT.

American Steel & Wire Co.
Buffalo Wire Works Co.

CONVEYORS.

Allis-Chalmers Manufacturing Co.
American Fabric Belting Co.
Austin Mfg. Co.
Bartlett, C. O., & Snow Co.
Caldwell, H. W., & Sons Co.
Dull, Raymond W., & Co.
Ehram, J. B., & Sons Mfg. Co.
Goodrich Co., The B. F.
Jeffrey Manufacturing Co.
McLanahan Stone Machine Co.
Stephens-Adamson Mfg. Co.
Webster Mfg. Company.
Weller Mfg. Co.

CONSULTING GEOLOGISTS.

Grimsley, G. P., Ph. D.
Lewis & Co., W. J.

CRUSHERS.

Allen Edgar American Manganese Steel Co.
Allis-Chalmers Manufacturing Co.
Austin Mfg. Co.
Bacon, Earl C.
Bartlett, C. O., & Snow Co.
Bonnot Co., The.
Bradley Pulverizer Co.
Butterworth & Lowe.
Ehram, J. B., & Sons Mfg. Co.
Gardner Crusher Co.
Gruendler Patent Crusher & Pulverizer Co.
Jeffrey Manufacturing Co.
Kent Mill Co.
Lewistown Foundry & Machine Co.
Martin, Henry.
McLanahan Stone Machine Co.
Pennsylvania Crusher Co.
Power & Mining Mach. Co.
Symons Brothers.
Sturtevant Mill Co.
Taylor-Wharton Iron & Steel Co.
Universal Crusher Co.
Williams Pat. Crusher & Pulverizer Co.

DRILLS.

Cyclone Quarry Drill Co.
Howells Mining Drill Co.

DRYERS.

American Process Co.
Bartlett, C. O., & Snow Co.
Cummer, F. D., & Son Co.
Ruggles-Coles Eng. Co.
Worrell, S. E.

DUMP CARS.

Atlas Car & Mfg. Co.
Austin Mfg. Co.
Electric Locomotive and Car Co., The.
Stephens-Adamson Mfg. Co.
Weller Mfg. Co.

ENGINEERS.

Bacon, Earl C.
Dull, Raymond W., & Co.
Fuller Engineering Co.
Grimsley, G. P.
Improved Equipment Co.
Lewis, W. J., & Co.
Meade, R. K.
Smidth & Co., F. L.
Yates, Preston K.

ENGINES.

Novo Engine Co.

FIRE BRICK.

Carolina Portland Cement Co.
Houston Bros. Co.
Improved Equipment Co.
Union Mining Co.

FURNACES FOR SPECIAL PURPOSES.

Improved Equipment Co.

GAS AND GASOLINE ENGINES.

Cyclone Quarry Drill Co.

GAS PRODUCERS.

Improved Equipment Co.

GEARS.

Caldwell, H. W., & Son Co.
Taylor-Wharton Iron & Steel Co.
Weller Mfg. Co.

GYPSUM-PLASTER.

American Keene Cement Co.
Best Bros. Keene's Cement Co.
Carolina Portland Cement Co.
Cottonwood Fibre Co.
Giant Plaster Board Co.
King, J. B., & Co.
National Mortar & Supply Co.
Niagara Gypsum Co.
Plymouth Gypsum Co.
Reeb, M. A.
U. S. Gypsum Co.

HYDRATING CYLINDERS.

Kritzer, The, Co.
Miscampbell, H.

HYDRATING MCHY.

Kritzer, Co., The.

LIME.

Carolina P. C. Co.
Farnam-Cheshire Lime Co.
Houston Bros. Co.
Kelley Island Lime & Trans. Co.
Marblehead Lime Co.
Mitchell Lime Co.
The Moores Lime Co.
National Lime & Stone Co.
National Mortar & Supply Co.
Ohio & Western Lime Co., The.
Scioto Lime & Stone Co.
Security Cement & Lime Co.
Woodville Lime & Cement Co.

LIME, HYDRATED.

Kelley Island Lime & Transport Co.
Marblehead Lime Co.
The Moores Lime Co.
National Lime & Stone Co.
National Mortar & Supply Co.
Ohio & Western Lime Co., The.
Scioto Lime & Stone Co.
Security Cement & Lime Co.
Woodville Lime & Cement Co., The.

LIME KILNS.

Improved Equipment Co.

LOCOMOTIVES.

American Locomotive Co.
Davenport Locomotive Wks.
Electric Locomotive and Car Co., The.

MANGANESE STEEL.

Allen Edgar Manganese Steel Co.
Taylor-Wharton Iron & Steel Co.

MOTOR TRUCKS.

Abendroth & Root Mfg. Co.

METAL LATH.

Buffalo Wire Works Co.
Carolina Portland Cement Co.

PERFORATED METALS.

Johnston & Chapman Co.

PNEUMATIC TOOLS.

Howells Mining Drill Co.

PLASTER MCHY.

Butterworth & Lowe.
Cummer, F. D., & Son Co.
Dunning, W. D.
Ehram, J. B., & Sons Mfg. Co.
Miscampbell, H.
Williams Pat. Crusher & Pulverizer Co.

PULVERIZERS.

Allis-Chalmers Manufacturing Co.
American Pulverizer Co.
Bonnot Co., The.
Bradley Pulverizer Co.
Gruendler Patent Crusher & Pulverizer Co.
Jeffrey Manufacturing Co.
Kent Mill Co.
Pennsylvania Crusher Co.
Raymond Bros. Impact Pulverizer Co.
Sturtevant Mill Co.
Williams Pat. Crusher & Pulverizer Co.

RAILROAD MATERIAL.

Allis-Chalmers Manufacturing Co.
Atlas Car & Mfg. Co.

ROOFING MATERIAL.

Carolina Portland Cement Co.
Houston Bros. Co.
Patent Vulcanite Roofing Co.

SAND.

Ottawa Silica Co.
Union Sand & Material Co.

SAND AND GRAVEL WASHING PLANTS.

Dull & Co., Raymond W.
Stephens-Adamson Mfg. Co.
Webster Mfg. Co.
Weller Mfg. Co.

SAND-LIME BRICK MCHY.

Miscampbell, H.

SCREENS.

Buffalo Wire Works.
Butterworth & Lowe.
Dull & Co., Raymond W.
Ehram, J. B., & Sons Mfg. Co.
Hendricks Mfg. Co.
Johnston & Chapman Co.
McLanahan Stone Machine Co.
Stephens-Adamson Mfg. Co.
Sturtevant Mill Co.
Webster Mfg. Company.
Weller Mfg. Co.

SCREEN SECTIONS.

Johnston & Chapman Co.

STEAM SHOVELS.

Allen Edgar Manganese Steel Co.
American Locomotive Co.
Contractors Mach. & Sup. Co.
The Marion-Osgood Co.

STEAM SHOVEL TEETH.

Taylor-Wharton Iron & Steel Co.

STUCCO RETARDER.

National Retarder Co.

TUBE MILLS.

Allis-Chalmers Manufacturing Co.
Smidth & Co., F. L.

WAGONS.

Troy Wagon Wks. Co., The

WATERPROOFING.

Cabot, Samuel, Inc.
Carolina Portland Cement Co.
Dri-Crete Co., Inc.
Maumee Chemical Co.
Sandusky Portland Cement Co.
Trus-Con Laboratories
Wadsworth, Howland & Co., Inc.

WEIGHING MACHINES.

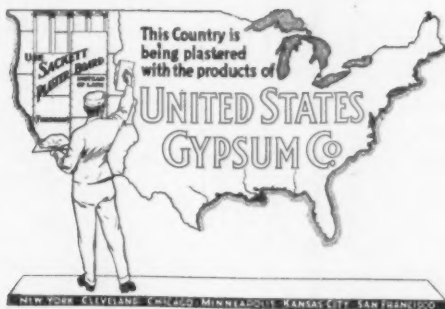
Automatic Weighing Machine Co.
Sturtevant Mill Co.

WELL DRILLS.

American Well Works.



THE LOGICAL LATHING MATERIAL
THE BEST IN GYPSUM PLASTER



PYROBAR GYPSUM TILE

Recognized highest standard of efficiency
in Fire-Proofing

U. S. G. PRODUCTS—"THE PROGRESS OF THE GYPSUM INDUSTRY"

KING'S WINDSOR CEMENT FOR PLASTERING WALLS AND CEILINGS

Buffalo Branch, CHAS. C. CALKINS, Manager
322 W. Genessee Street.

Not the hardest, but the toughest and best Wall Plaster made—Can be applied with less labor. Has greater covering capacity than any other similar material

J. B. KING & CO., 17 State Street, New York.

Our Classified Section Advertisements

Are the Business Mart of the Industry

Advertisements cost 25 cents a line for one insertion, 45 cents a line for two insertions and 60 cents a line for three insertions.

TRY IT

ROCK PRODUCTS

537 S. Dearborn St., CHICAGO

PEERLESS

means without an equal and that is what our products are beyond the shadow of a doubt.

Peerless Plaster-Board

The Best on the Market To-day

Peerless Plaster Board has no superior on the market today. Strength, durability, and uniformity in thickness with clean cut edges are its chief virtues.

Peerless Plaster Board finished with Peerless Plaster make a Peerless Wall. Builders' Supply Retailers say it is the best Plaster Board manufactured. If you are "from Missouri" write us today for sample and prices.

Write today for our
PEERLESS PROPOSITION



Peerless Cement Plaster
Peerless Wood Fibre Plaster
Peerless Sanded Plaster
Peerless Ready Finish
Peerless Portland Stucco
(Exterior Plastering)

We Ship Mixed Cars
of Plaster and Board

Peerless Plaster Board comes in sheets 32 inches by 36 inches.

Peerless Plaster Board is a fire retardant and an efficient sound deadener.

Peerless Plaster Board is a non-conductor of heat and cold.

Peerless Plaster Board is an insurance against cracks, buckles, and lath stains.

Get in line with
THE PEERLESS LINE
WRITE TODAY

M. A. REEB, : Buffalo, New York

Tell 'em you saw it in ROCK PRODUCTS

CANADA PEBBLES

Carefully selected
as to size.

Best shapes.

Will not break or
flake in Tube Mill.

CANADA PEBBLE CO., Limited

Highest Grade Grinding
Pebbles for Tube Mills

General Offices
PORT ARTHUR
Ontario, Canada

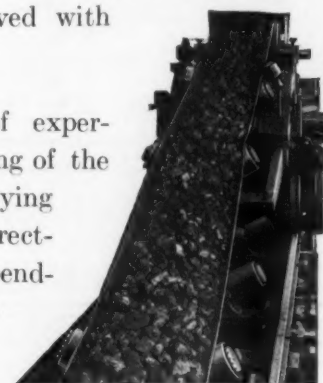
Branch Office
CHICAGO, ILL.
537 S. Dearborn St.

Install Jeffrey Belt Conveyers

For Use with Your Crushing Equipment

The problem of handling heavy or abrasive materials such as crushed stone, sand, gravel, etc., with minimum cost for power and deterioration to machinery is easily solved with the Jeffrey Belt.

Our many years of experience in the manufacturing of the most practical conveying equipments insure correctness in design and dependability in quality of material.



Catalog No. 67-D Mailed Upon Request

Write for information on our STANDARD Line of Chains, Buckets, Sprockets, Screens, Crushers, Pulverizers, Power Transmission Machinery, etc.

Jeffrey Mfg. Co., Columbus, Ohio

New York Boston Philadelphia Pittsburgh Cleveland
Charleston, W. V. Birmingham Chicago Denver Montreal

BOOKS FOR THE TRADE

Cement Users

- Portland Cement for Users
Henry Falja and D. B. Butler. Price \$1.20 C
- Cements, Mortars and Concrete
Myron C. Falk. Price \$2.50 C
- Reinforced Concrete
W. H. Gibson and W. L. Webb. Price \$1.00. C
- Hand Book of Cost, Data
Halbert P. Gillette. Price \$4.00. C
- Concrete Construction
H. P. Gillette and C. S. Hill. Price \$5.00 C
- Cement Workers' and Plasterers' Ready Reference
H. G. Richey. Price \$1.50. C
- Reinforced Concrete
A. W. Buel and C. S. Hill. Price \$5.00. C
- Concrete
Edward Godfrey. Price \$2.50. C
- Reinforced Concrete
C. F. Marsh and Wm. Dunn. Price \$7.00. C
- Practical Treatise on Foundations
W. Patton. Price \$5.00. C
- Concrete
Thomas Potter. Price \$3.00. C
- Cement and Concrete
Louis C. Sabin. Price \$5.00. C
- Concrete and Reinforced Concrete Construction
Homer A. Reid. Price \$5.00. C
- Handbook on Reinforced Concrete
F. D. Warren. Price \$2.50. C
- Popular Handbook for Cement and Concrete Users
Myron H. Lewis & A. H. Chandler. Price \$2.50. C
- A Manual of Cement Testing
Richards & North. Price \$1.50. V
- A Treatise on Cement Specifications
Jerome Cochran. Price \$1.00. V
- Manual of Reinforced Concrete and Concrete Block Construction
Chas. F. Marsh and Wm. Dunn. Price \$2.50. V

Cement and Lime Manufacturers

- Bungalows, Camps and Mountain Houses
Price \$2.00. C
- Limes, Cements and Mortars, Concretes, Mastics, etc.
G. R. Burnell. Price \$0.60. C
- Instructions to Inspectors on Reinforced Concrete Construction
Geo. P. Carver. Price \$0.50. C
- Cements, Limes and Plasters
Edwin C. Eckst. Price \$6.00. C
- Practical Treatise on Limes, Hydraulic Cements and Mortars
Gen. Q. A. Gillmore. Price \$4.00. C
- Mortars, Plasters, Stuccos, Concretes, Portland Cements and Compositions
F. Hodgson. Price \$1.50. C
- Concrete Factories
Robert W. Lesley. Price \$1.00. C
- Portland Cement; Composition
Richard K. Meade. Price \$4.50. C
- Manufacture of Concrete Blocks
Wm. M. Torrence and others. Price \$1.50. C
- Practical Cement Testing
W. Purves Taylor. Price \$3.00. C
- Foundation and Concrete Works
E. Dobson. Price \$0.60. C
- Reinforced Concrete. Mechanic and Elementary Design
John P. Brooks. Price \$2.00. C
- Concrete and Stucco Houses
O. C. Hering. Price \$2.00. C
- Concrete Costs
Taylor-Thompson. Price \$5.00. C

Architects and Engineers

- Building Construction and Superintendence—Masonry Work
F. E. Kidder. Price \$6.00. C
- Theory of Steel-Concrete Arches and Vaulted Structures
Wm. Cain. Price \$0.50. C
- Concrete Country Residences
Price \$1.00. C
- Graphical Handbook for Reinforced Concrete Design
John Hawkesworth, C. E. Price \$2.50. C
- Theory and Design of Reinforced Concrete Arches
Arvid Reuterdaahl. Price \$2.00. C
- Treatise on Concrete, Plain and Reinforced
F. W. Taylor and S. E. Thompson. Price \$5.00. C
- Concrete Steel
W. N. Twelvetrees. Price \$1.90. C
- General Specifications for Concrete Work as Applied to Building Construction
Wilbur J. Watson. Price \$0.50. C
- Strength of Materials
Edward R. Maurer. Price \$1.00. C
- Highway Construction
Austin T. Byrne and Alfred E. Phillips. Price \$1.00. C
- Refrigeration
Chas. Dickerman and Francis H. Boyer. Price \$1.00. C
- Plumbing
Wm. Beall, Gray and Chas. B. Ball. Price \$1.50. C
- Estimating
Edward Nichols. Price \$1.00. C
- Building Superintendence
Edward Nichols. Price \$1.50. C

ROCK PRODUCTS, 537 South Dearborn Street, CHICAGO

Tell 'em you saw it in ROCK PRODUCTS



M-O "43" 1½-yd. Traction Shovel. Stone Quarry of John D. Owens & Son, Owens, Ohio.

STEAM SHOVELS

DIPPER DREDGES

BALLAST UNLOADERS

M-O "120" 6-yd. Shovel

Equipped with 4-yd dipper, in stock for immediate shipment. Shipping weight, 120 tons.

THE MARION-OSGOOD COMPANY

Eastern Office:
51 STATE STREET, ALBANY, N. Y.

Marion, Ohio, U. S. A.

BETTER and CHEAPER than
hair in HYDRATED LIME



Superior Plastering Fiber
COTTONWOOD FIBER CO.
ST. LOUIS

Cummer Continuous Process
**CALCINING
GYPSUM**

No
Kettles
Used

Plants
in
Operation

CUMMER DRYERS DRY EVERYTHING
The F. D. Cummer & Son Co.
CLEVELAND, OHIO

When You Build—Build Forever

CONCRETE BUILDINGS are permanent.

There are unlimited possibilities in CONCRETE construction.

Anything that can be built can be built better of CONCRETE.

PORTLAND CEMENT is the 20th Century building material.

Marquette Portland Cement

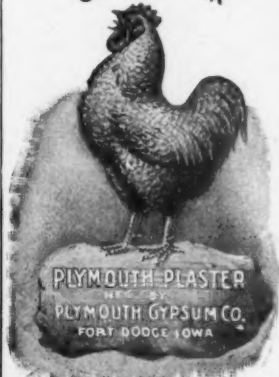
made from rock sets a higher standard



Sound - Strong - Uniform

Marquette Cement Mfg. Co.
Marquette Building CHICAGO, ILL.

CROWING FOR



PLYMOUTH PLASTER
WOOD FIBER PLASTER
PLYMOUTH FIREPROOF
PARTITION BLOCKS
PLASTER BOARD
STEEL STUDDING

THE QUALITY BRANDS

WRITE US FOR PRICES AND
ADVERTISING MATTER

Plymouth Gypsum Co.
Fort Dodge, Iowa

IMPORTANT Advertisers—Take Notice

Changes of Copy

Must be in this office by the Thirteenth of the month, if proofs are desired, if no proofs are required the desired changes can be made if copy is received by noon of the Seventeenth.

New Advertisements

To insure proper classification, should be in this office by the Fifteenth of the month, but they can be inserted in the last form going to press if received by the Nineteenth. The punctual publication of the paper admits no deviation from these rules. Advertisers are earnestly requested to co-operate with us.

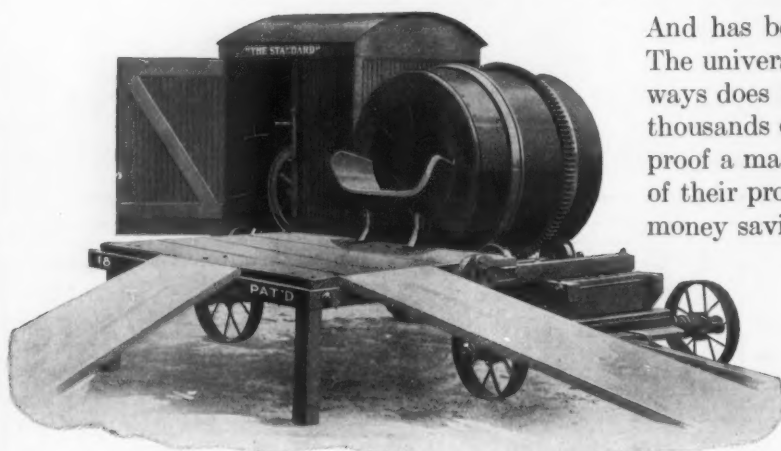
The Francis Publishing Company
537 South Dearborn Street, Chicago, Ill.

Tell 'em you saw it in ROCK PRODUCTS

Again We Repeat That "The STANDARD"

Is not an experiment, nor is it a has-been, but it is

"A Proven Standard"



And has been such ever since the first machine was built. The universal verdict is that "The STANDARD" Mixer always does more than the manufacturers claim for it. The thousands of satisfied users all over the world is the biggest proof a manufacturer can offer for the success and popularity of their product. Low charging is the greatest of time and money saving features ever offered to the modern contractor.

Our new catalog No. 33 contains new and valuable information. Sent upon request.

*Don't Forget That We Are the Supply House
of the World for Contractors' Supplies*

The Standard Scale & Supply Company

Manufacturers High Grade Contractors, Machinery and Supplies

CHICAGO
1345-1347 Wabash Avenue

PITTSBURGH
243-245 Water Street

PHILADELPHIA
35 South Fourth Street

NEW YORK
136 West Broadway

ATTENTION!

CEMENT MILLS AND STONE QUARRIES

We have for sale the following machinery in absolutely first-class condition. Location with prices will be furnished on application:

- 2 No. 6 Gates Crushers, in first-class condition, practically new, with manganese steel head and concave.
- 7 Emerick 10-foot Air Separators.
- 1 30-inch Pratt & Cody low pressure Gate Valve. (Never used.)
- 1 Stroud Pulverizer (class O Stroud air separation, practically new.)
- 2 No. 3 Semi-vulcanite Williams Pulverizers (good condition.)
- 1 Williams Roller Feed Steam Jacketed Pulverizer (practically new.)
- 3 Marion Model 60, 2½ yd. STEAM SHOVELS, late shop numbers, good condition.
- 2 Ingersol-Rand Compressors, for 950 feet per minute, 100 pound pressure.
- 2 Ingersol-Rand Compressors, for 1275 feet per minute, 100 pound pressure.

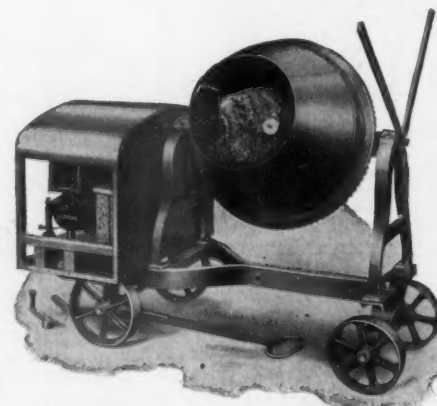
We have machinery of all kinds and descriptions for Cement Mills, Lime Kilns, Stone Quarries and Gravel Pits.

Write for Information

M. T. HAYES & COMPANY MACHINERY

EXECUTIVE OFFICES, SINGER BUILDING :: 149 BROADWAY, NEW YORK

Stop!—Look!!—Listen!!! The Big-An-Little-Mixer A MIX A MINUTE



If so, think of every possible advantage you could ask for or desire in a Small Batch Mixer. Check them over against the "BIGANLITTLE" and you will find them all present. Try it.

First crack out of the box, you want.

A Mixer that really mixes—A Mixer where you see what's going on—A Mixer that mixes all kinds of material—A Mixer that runs easy and takes little power—A Mixer that is easily loaded and unloaded—A Mixer that is easily cleaned—

ed—A Mixer that is strong and durable—A Mixer that will save you money—A Mixer that you buy at the right price.

If you are a contractor on big and little jobs, write us for more information about this "BIGANLITTLE" Mixer, which will be a surprise for you on big and little jobs, as this mixer is both big and little—big in results and little in size.

Smaller than other Big Mixers Larger than other Small Mixers

PRICE F. O. B. FACTORY, \$165.00

Write for Catalog A-1

The Jaeger Machine Co., 216 West Rich Street,
COLUMBUS, OHIO

Eastern Representative: S. M. COE, 150 W. 65th Street, New York City.
Pacific Coast Representative: THE EDWARD R. BAC. N & CO., San Francisco, Calif.

Tell 'em you saw it in ROCK PRODUCTS

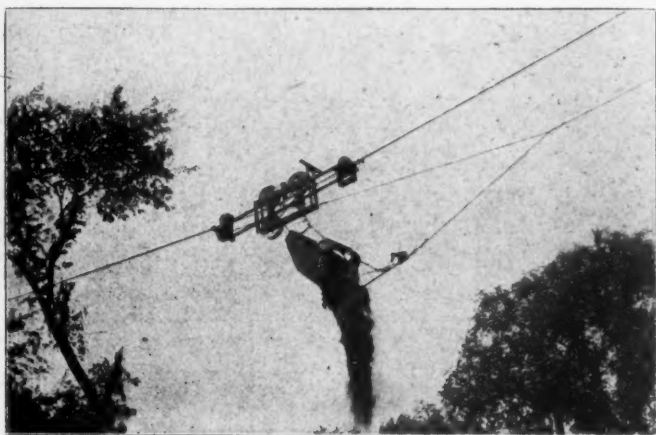


UNIVERSAL

CABLEWAY

EXCAVATORS

The machine you want for digging Sand, Gravel, Clay or other earth and delivering to bin, railway car or storage piles.



Piling Stripping at Mt. Pulaski, Ill.

With this Excavator you can reach out 500 feet or more to get the load and deliver same at any point along track cable desired. Requires a two drum engine and one man to operate. The scraper bucket digs positively and easily. The automatic trolley dumps the scraper easily, quickly and positively.

Steam Shovels
Revolving Drag Line Excavators
Clay Diggers for Brick and Tile Plants
Steam Hoists --- Electric Hoists
Derricks --- Wire Rope
Blocks and Tackle

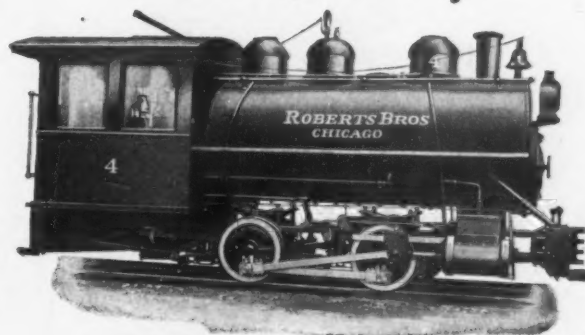
J. C. BUCKBEE & COMPANY

ENGINEERS AND MANUFACTURERS

General Office:

FIRST NATIONAL BANK BLDG., CHICAGO

Do You Have Cars to Haul?
The Davenport Locomotive
Will Save Money



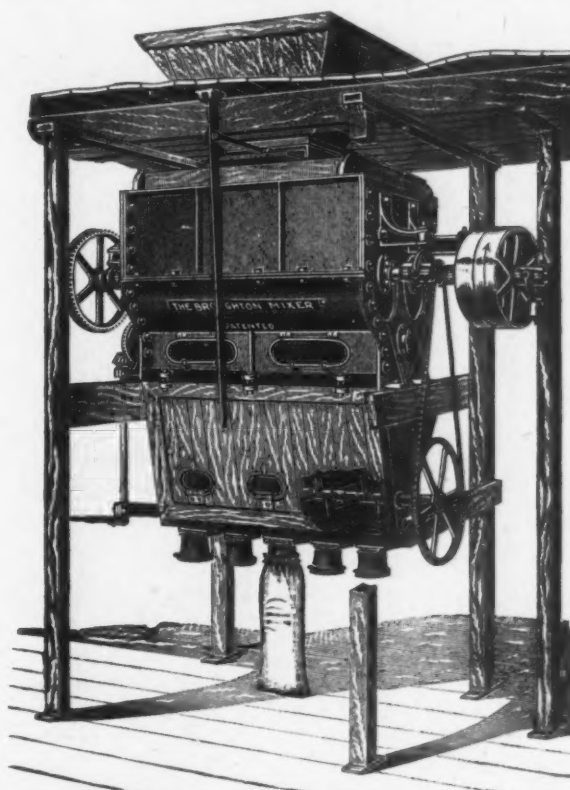
Special Designs for Special Purposes
Any Size, Any Gauge, Any Weight
Write for Prices and Particulars

DAVENPORT LOCOMOTIVE WORKS

DAVENPORT, IOWA

BRANCH OFFICES:

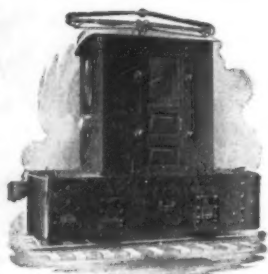
Chicago, 12 and 14 So. Canal St.	New York, 30 Church St.
Seattle, 617 Western Ave.	St. Paul, 1308 Pioneer-Press Bldg.
St. Louis, 654 Peirce Bldg.	Cincinnati, O., 703 1st Nat. Bank Bldg.
Canadian Representatives:	
F. H. Hopkins & Co., Montreal, Que.	
Dominion Equipment & Supply Co., Winnipeg, Man., Edmonton, Alta.	



The most thorough and efficient
Mixers of Plaster, Cement and
Dry Materials. Send for Circular.

W. D. DUNNING, Water St., Syracuse, N. Y.

Tell 'em you saw it in ROCK PRODUCTS



No. 6550
Electric Industrial Locomotive

THE ATLAS CAR & MFG. CO. CLEVELAND, OHIO

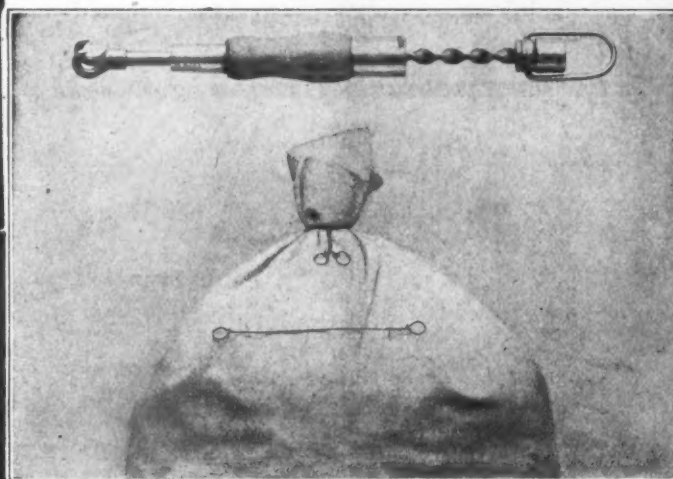
— MANUFACTURERS OF CARS FOR —
QUARRIES, CEMENT WORKS, AND GENERAL
USES. ELECTRIC CARS AND LOCOMOTIVES,
TURNABLES, SWITCHES, FROGS.



No. 274
End Dump Quarry Car



No. 805
Dumping Stone Carrier.



THE CURRY BAG TYER IS SENT ON 30 DAYS' TRIAL

It has proven in hundreds of cement, plaster, lime, and other bagging concerns, for over three years, that its security and efficiency are far greater than any possible use of twine.

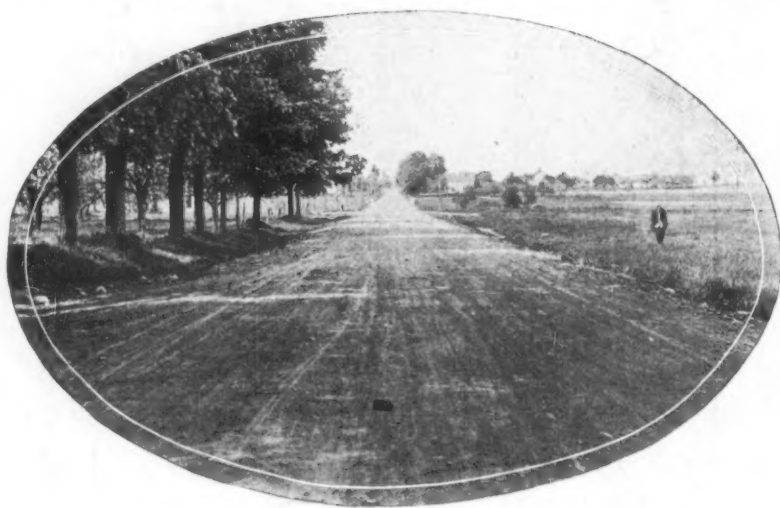
Test it without cost.

Catalog E and Prices

J. P. CURRY MFG. CO., Inc. 110 East 23rd St. NEW YORK CITY

(Formerly Curry Bag Tyer Dept. of Clifford L. Miller & Co.)

We have begun suit against the maker and seller of a similar tool and are prepared to enforce our rights against all infringements.



CONCRETE IS BEST FOR
ROADS AND ATLAS IS BEST
FOR CONCRETE. IT GIVES
ROAD DOLLARS THEIR
GREATEST DIAMETER

We Must All Realize

the importance of the concrete road in the advancement of the cement business for dealer and manufacturer.

No sale is a success unless the buyer is satisfied, and therein lies the great strength of the concrete road movement—the satisfaction it gives to the taxpayer and user.

Should we not all of us then work in unison to foster the movement in every possible way?

We are ready to aid by every means in our power. Simply ask us.



"The standard by which all other makes are measured"

THE ATLAS PORTLAND CEMENT CO.

30 BROAD ST. NEW YORK

Corn Exch. Bank Bldg Chicago, Ill.

Morris Bldg Philadelphia Pa Plymouth Bldg Minneapolis, Minn.

Productive capacity over
50,000 barrels per day



Largest in the
World



Tell 'em you saw it in ROCK PRODUCTS